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AGRICULTURE

No. 1317

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LIVESTOCK FEED PROCUREMENT

COMMENTARY ON RSFSR LIVESTOCK FEED SUPPLY PROBLEMS

Moscow PRAVDA in Russian 4 Dec 81 p 2

[Article by V. Yur'yev, candidate of economic sciences (Moscow): "When Exchange is Advantageous"]

[Text] This year turned out to be difficult for farmers. Not all regions obtained the planned yield of forage grain. This makes it even more important to distribute it correctly and utilize it skillfully. As life has demonstrated, the task is not a simple one. To carry it out means to increase the output of animal husbandry products and to save a good deal of valuable feed. But that is not all. Thrifty handling of forage grain creates conditions for increasing its production as well. At first glance this statement seems strange. But let us look at it.

It is known that most of the raw material for production on the kolkhozes and sovkhozes is mainly that which they grow themselves: grain, feed and seeds. But when distributing the gross output planning agencies certainly do not take this important feature fully into account, which frequently restricts the initiative of the enterprises and causes them harm.

Here is a specific example. The Iliyskiy Sovkhoz in Alma-Atinskaya Oblast constructed a hog raising complex. The farm can provide its own concentrated feeds. It raises grain and it has a feed shop which is capable of processing it into full-value forage. But, alas! From year to year it is planned for the sovkhoz to sell most of the crop it has harvested. It is sent to the elevator. Then it is gradually shipped back in the form of mixed feeds from state resources. This is what L. I. Brezhnev was speaking about at the November (1981) Plenum of the CPSU Central Committee: "At the present time almost all of the procured grain is shipped to elevators (frequently over long distances), even though a good deal of this grain is soon sent back."

What does this practice lead to? During the years of the past five-year plan alone, 440,000 quintals of grain were sent out from the sovkhoz and then returned even though, I repeat, it could have been processed locally.

More than 4,000 trips must be made annually in order to accomplish these transfers, and half of them are during the harvest period. Transportation is withdrawn from the fields, the harvest is prolonged and part of the crop is lost.

Incidentally, the damage is not limited to losses of products and expenditures on shipping. The Iliyskiy Sovkhoz receives 3-6 rubles less for each quintal of grain than it pays for each quintal of mixed feed. With this kind of exchange, during the five-year plan it failed to receive more than 1.7 million rubles. Moreover, there are interruptions in the deliveries of concentrated feeds to the sovkhoz and the assortment is not always correct. And one quintal of them contains only 95 feed units while a quintal of wheat and barley, which the sovkhoz sells, contains no less than 110 feed units. In a word, it is disadvantageous for all parties.

Of course, the existing practice of exchange also has its advantages. Especially when special high-quality mixed feeds are delivered to the animal husbandry workers. But, as practice shows, there are many disadvantages. It is not only a matter of losses and economic harm to the enterprises, but also the unreliability of the exchange itself. One can greatly increase production, overfulfill the procurement plans, and still not obtain mixed feeds: they go to other farms.

With this kind of distribution the kolkhoz and sovkhoz workers frequently regard grain as an outside product. Because of this, in some places considerable areas that should be planted in rye, oats and pulse crops are frequently used for other purposes--for green fodder, silage and haylage.

There is also another problem here. Since the concentrated feeds are distributed among the republics, oblasts and enterprises regardless of how much grain they sold, favorable conditions are created for selfish attitudes. After all, it is more advantageous to increase the consumption of others' forage, without being concerned about developing one's own production. It seems that it is no accident that in recent years the quantity of grain consumed by the republics and oblasts has increased. Analysis shows that in the majority of cases this is explained not so much by deepening specialization as by the notion that there is no special problem with obtaining concentrated feeds from outside.

It turns out that those who produce grain sometimes end up in a disadvantageous position. Thus during productive years the Rostov sovkhozes considerably increased their yield of spike crops, but this did not enable them to improve their forage balance. Almost all of the increase went for overfulfilling the procurement plan. In terms of the expenditure of the grain for animal husbandry needs, the Rostov farmers did not even come close to the level of the consumer oblasts. Having considerably overfulfilled the plans for the sale of wheat, barley and other crops, many farms remained indebted to the state for procurements of animal husbandry products.

V. I. Lenin pointed out that ". . . distribution is a method, a tool, a means of increasing production." But in this case the existing policy does not meet these requirements, and frequently impedes the development of the main branches--crop growing and animal husbandry. Apparently the time has come to improve the consumption of concentrated feeds and make it more directly dependent on the condition of one's own production.

The kolkhozes and sovkhozes that have extensive areas planted in grain and the animal husbandry complexes, it would seem, could process part of their crop for mixed feeds. Many of them are able to cope with this task even now. And this number will increase: at the November (1981) Plenum of the CPSU Central Committee they discussed the expediency of gradually changing over to the construction of small storehouses and mixed feed shops close to the kolkhozes and sovkhozes in addition to the large elevators. This will eliminate the unnecessary shipments and make it possible to prepare forage in the assortment and at the time periods that are necessary to the consumers.

But many farms need help from outside. Perhaps the best form of this would be state exchange of grain for mixed feeds. Under these conditions the property rights of the kolkhozes and sovkhozes concerning the products they sell should be retained right down to trading in forage. In a word, those who have raised more will be able to enjoy the results of their labor.

Such exchange is taking place on a small scale even now. But it is poorly organized and the exchanges are not designated in the national economic plans. The oblasts and enterprises do not know about them when they are developing their production program. Such indefinite information, of course, can only cause harm. It is apparently necessary to arrange things in such a way that the reciprocal deliveries of grain and mixed feeds that are categorized as state exchange would be reflected both in the national economic plans and in the plans of the kolkhozes, sovkhozes and processing enterprises. The relations among them could be better arranged on the basis of direct ties, with the responsibility of the parties being backed up by a system of contracts. Of course the volume of operation should be determined taking into account the capabilities of the state processing industry.

And it also seems that the accounting for above-plan sale of grain could be handled differently. As they say, one can only determine this amount after the farm has fulfilled not only the assignment for procurement, but also the agreements for exchange deliveries for mixed feeds. It might be possible not to assign plans for the sale of grain to hog raising and poultry sovkhozes, and only to purchase surplus products from them.

This year's difficult weather conditions once again confirmed the persistent need to increase the motivation of the oblasts and farms to develop grain production. It is precisely in places where the advancement of this branch is a daily concern that they were able to raise a fairly good crop even under unfavorable conditions.

Additionally, it is necessary to ensure thrifty expenditure of feeds and to obtain a high yield from them everywhere. There are significant reserves here. One of them is improving the breeding composition of the herd. Particularly through interoblast cooperation. Having purchased purebred and improved calves and non-calving young cows from Moscow and Leningrad oblasts, the farms of the Mariyskaya ASSR were able to change the qualitative composition of the dairy herd, almost double its productivity, and reduce the expenditure of feeds per unit of output. It turned out to be no less advantageous to transfer older calves from zones that specialize in the production of whole milk into zones that have inexpensive feeds for final fattening.

But in recent years interoblast production ties have been curtailed even though the supplier enterprises, the consumer enterprises and the state are interested in their development. On the whole in northwestern and central oblasts, which have the largest quantity of highly valued dairy cattle, the shipment of purebred and improved calves and non-calving young cows decreased last year as compared to 1976 by 13 percent, and in the other oblasts--by 20 percent and more. Valuable head of livestock are being used inefficiently; most frequently they are slaughtered.

They have practically stopped shipping larger young animals for final fattening out of oblasts that produce whole milk. Livestock with low weight are released directly to the meat combines. And yet not so long ago these deliveries were carried out on a large scale. Thus in 1977 the Leningrad specialized sovkhozes transferred to other oblasts almost 23,000 male calves weighing 180-200 kilograms. As a result, about 55,000 additional quintals of meat in live weight were produced. Moscow farms also received good results from transferring young animals to other oblasts for fattening and completion of raising.

The main reason for the curtailment of these production ties is that they are not advantageous for the oblasts that deliver the livestock. Interoblast cooperation is still not legitimized in the national economic plans, and such deliveries are almost not taken into account during the formation of union-wide funds and funds for local consumption. And the more of them there are, say, in the oblast, the less output goes into market supplies. The time has come to indicate on separate lines in the national economic plans the interoblast and interrepublic "transfers" to purebred and improved livestock and young livestock for completion of raising and fattening. And they must be taken into account when determining the plans for procurements and forming the centralized and local funds.

And there is another reserve. The farms that have fulfilled the plan for the sale of meat ahead of schedule, beginning in October, retain a good deal of livestock which could be sold to the state. The reasons? There are several of them. One of them is that the kolkhozes and sovkhozes are not permitted to sell animals to be credited to the next year's plan.

As a result, they retain the livestock until January, and then the rush begins. Frequently in the final quarter, when the animals have not yet lost their nutritional condition, they deliver less than one-fourth of them, and in the first quarter they deliver one-third of the annual volume of livestock to be sold. The irregularity of the shipments to the processing enterprises leads to losses. But the main harm is caused by the great overexpenditure of feeds, of which, as we know, there are not enough. With the animals consuming forage, their nutritional condition does not improve, but deteriorates, and weight is lost. Moreover, additional facilities are necessary. Labor expenditures also increase.

Apparently, taking into account the capabilities of the processing industry, it is necessary to give the kolkhozes and sovkhozes the right to release livestock to be credited to the following year after they have fulfilled the plan for the current year.

Solving all these problems, in our opinion, will help to implement the food program more successfully and increase the efficiency of the main branches of agriculture.

11772
CSO: 1824/102

LIVESTOCK FEED PROCUREMENT

ACCOUNT OF BELORUSSIAN FEED GRASS HARVEST OPERATIONS

Moscow PRAVDA in Russian 19 Jul 81 pp 1-2

[Article by Ye. Grigor'yev and A. Simurov: "The Meadow Presents"]

> [Text] Several years ago there was an impassable marsh on the flood plains of the Zel'vyanka River. But now the hayfields of the Progress Kolkhoz spread freely over it. There is an interfarm enterprise for producing grass and conifer meal and briquets here. It sends more than 4,000 tons of vitamin granules to the mixed feed industry, and obtains the same amount of feed mixtures in exchange. It distributes them to local kolkhozes with which it cooperates.

The green conveyor operates continuously. The head agronomist of the kolkhoz, I. Levchik, showed us a multicolored map of the haylands. It is a kind of meadow-pasture crop rotation covering 1,182 hectares. And it also produces green mass. Each section is watched vigilantly by the team that tends the meadows. The grass stand is renewed regularly. Each hectare produces an average of almost 60 quintals of feed units during a season.

There are two brigades on the Progress Kolkhoz. They include operators for drying and granulating feeds and machine operators. Working on two shifts, the machine operators produce 45-50 tons of grass meal a day. The collective is payed taking to account the quality of products, which is evaluated by the enterprise's laboratory. The creation of a specialized subdivision helped significantly to improve the indicators of the operation of the farm. In Mostovskiy Rayon meat production increased by 19 percent during the five-year period, and milk production--by 27 percent.

It is no accident that we have discussed the practice of the Progress Kolkhoz. Feed production is being changed over to an industrial basis in Belorussia, and it is supported as an independent branch. The measure is timely. The republic is experiencing a shortage of forage, a shortage which sometimes amounts to one-third, and on a number of farms, even one-half of the requirement. During the past three years the milk yield per cow decreased by 251 kilograms. The weight gain of the livestock also decreased, and the state failed to receive a good deal of meat and milk.

"It is necessary to rectify the situation as quickly as possible," says the secretary of the Central Committee of the Communist Party of Belorussia, N. Dementey. "We intend to increase the republic's forage resources more than 1.5-fold during five years. For the forthcoming winter it will be necessary to have an average of no less than 18 quintals of feed units per conventional head of livestock. Remember that last year by the beginning of the stabling period this indicator did not exceed 8 quintals. It is especially important to increase the production of coarse and juicy feeds and, on this basis, to reduce the consumption of grain.

Today's procurement workers have more than a million hectares of perennial grasses, about 400,000 hectares of annual grasses, 229,000 hectares of corn and more than 3 million hectares of meadows and pastures to work with. The farmers here now are formed into specialized detachments and teams. They are given technical equipment, transportation, storehouse facilities and capacities for processing raw material."

"With the creation of the specialized branch our farms are now beginning to have enough forage," says the deputy chairman of the Progress Kolkhoz in Grodnenskiy Rayon, V. Kremko. "The many-year crop hayfields and pastures produce 80-90 quintals of feed units per hectare. Milk production per 100 hectares of agricultural land has reached almost 900 quintals. Not bad."

In Poles'ye, which is becoming a large base for cattle raising for meat, interfarm enterprises are widely known, for example, the Ola in Zhlobinskiy Rayon and the Pripyat' in Mozyrskiy Rayon. Here they have constructed large plants for producing dehydrated feeds which are equipped with modern technical equipment. They have been given capacities for storing products and the necessary set of machinery for planting grasses, tending them, harvesting and transporting the green mass. Enterprises have been created using state capital investments and through voluntary pooling of monetary and material resources of the shareholding farms as well as their farm lands.

Feed production is getting on its feet as a specialized branch in all of the oblasts, with 3,000 mechanized detachments working. What influence do they exert on the formation of the forage base? We visited many farms and became convinced that the feed field and the meadow have begun to receive a great deal of attention from party and soviet organizations as well as agricultural workers. The areas planted in corn and grass-pulse mixtures have expanded, and after-harvest and replanted crops have increased. Most of the farmers have raised a fairly good crop of grasses and are now considerably ahead of last year's rates in preparing hay and haylage. Nature also helped by accelerating the ripening of the meadow grass by 10-12 days.

Specialization is producing good results in the republic. This year, for example, the preparation of hay by the active ventilation method and by pressing has doubled as compared to last year. The use of preservatives has also increased.

But the rich possibilities of the specialized branch are not being utilized with full return everywhere. By the middle of July tens of thousands of hectares of meadows in the republic had not been mowed. And the Belorussian Ministry of Agriculture planned to carry out the first mowing of pulse plants from 25 May through 15 June, and grasses--from 1 through 25 June. We are speaking about harvesting the grass stand. But when will it be possible to store the hay, for instance?

Each kolkhoz and sovkhoz has an average of two silage harvesting combines, seven mower-crushers, three press-pickups, and many other machines. With skillful utilization of this technical equipment, a total of 14 days are required for mowing grasses and 13 days for storing up haylage. But in practice this work takes at least twice as long as this. As a rule, feed harvesting machines operate on one shift, and they frequently stand idle because of breakdowns and the shortage of transportation. Not all farms adhere to the principle of flow line operation in the organization of their work. And they do not value the land or improve it.

In the oblasts and rayons of the republic there have been meetings of the party and economic aktiv where they discussed in detail the ways and means of stepping up feed production. But they have not managed to translate words into action everywhere. Some people living in some places still have a selfish attitude. Take, for instance, the Domanovo Sovkhoz in Ivatsevichskiy Rayon. The secretary of the party committee, S. Kurlenya, and the farm specialists still hope that the state will provide the farms with forage.

"Our meadows are poor," says the head agronomist of this sovkhoz, L. Petrushko. "We gather 8-9 quintals of hay per hectare."

Obviously the farm needs help. But, after all, there is a specialized detachment here. The sovkhoz has almost a thousand hectares of drained peat bogs at its disposal. If they were used intelligently it would be possible to obtain 3-4 times more feed than they obtain now. But the reclaimed land has become marshy and grown over with weeds. And, of course, the response to such "concern" is a scanty harvest.

One must say that many other farms of the Ivatsevichskiy Rayon are not very respectful of the land either. The majority of kolkhozes and sovkhozes have removed the first cutting of grasses, but have not carried out top dressing of the meadows. We did not see a single installation for forced drying of hay in the rayon.

Yes, the land is the main wealth of the agricultural worker. But it rewards 100-fold only those who are truly concerned about it. But, as we see, the republic also has many negligent farmers. Is this not why the return from each hectare is too low--an average of only 22 quintals of feed units? Forage crops, which occupy more than a million hectares or more than one-third of the planted areas, produce less than two-thirds of the required amount of feeds.

And take natural productive land. There are more than 3 million hectares of it in Belorussia, including almost 2 million hectares of improved land. It is far from being used fully. The average output of feed units per hectare of meadows does not exceed 13-15 quintals. This is approximately one-third of the potential. Hay fields and pastures do not receive enough fertilizers and they are poorly prepared. For example on the Put' Il'icha and the Voskhod sovkhozes in Lyakhovichskiy Rayoh one can find holes, bushes and even entire heaps of uprooted trees. This inheritance was left by the land reclamation workers of Gantsevichskiy and Lyakhovichskiy rayons and their colleagues from PMK-5 [mobile mechanized column], which is in Baranovichskiy Rayon.

The farmers are to blame for the condition of the restored lands, but the land reclamation workers have not always arranged to care for them properly either. Frequently they become grown over with bushes and wild grasses again and are withdrawn from agricultural utilization. Thus during the past ten years 600,000 hectares of land has returned to its initial condition. Yet up to 2,000 rubles have been spent for radical improvement of each of these hectares.

Unless they change their attitude toward grasses and become concerned about increasing their productivity, it will be difficult for the farms of Belorussia to reach the goals envisioned by the Eleventh Five-Year Plan for increasing the production of farm products. Understanding this, party, soviet and economic organizations of the republic are directing their efforts toward overcoming these arrears.

"Such enterprises as the Ola and Pripyat'," says the Belorussian SSR deputy minister of agriculture, F. Mirochitskiy, "are very capital-intensive. Their specialization is too narrow. Their technical equipment is used mainly during the summer. Only 60-70 percent of the capacities are utilized."

This means that, when improving the operation of the new services, it is necessary to devote more attention to strengthening feed production within the framework of ordinary farms. Questions of administration of the branch also need to be dealt with.

"Since it has been separated into an independent branch, it is necessary to develop economic ties with the partners," thinks the chairman of the Kolkhoz imeni Kalinin in Nesvizhskiy Rayon, Ya. Aleksankin. "We need standards for all feeds and calculated prices."

There are not enough spare parts. Because of this hundreds of powerful sets of machinery stand idle in the republic. We are bothered not only by the brief service life of the machinery, but also by the extremely slow rates of improvement of technical equipment for feed procurement.

"Except for the AVM," says the director of the Kletsk Krasnaya Zvezda breeding farm, I. Plavskiy, "there is essentially not a single set of machinery which meets the requirements of industrial feed production."

It is a busy time for agricultural workers: the forage base is being formed and the tending of planted areas is in full swing. The southern rayons of the republic have begun to harvest the crop. And it is necessary to do everything to complete the work on schedule.

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LIVESTOCK FEED PROCUREMENT

FOLLOW-UP COMMENTARY ON BELORUSSIAN FEED GRASS HARVEST OPERATIONS

Moscow PRAVDA in Russian 7 Sep 81 p 3

[Article: "The Meadow Presents"]

[Text] "The Meadow Presents". An article with this headline (PRAVDA 19 July) raised questions of better utilization of the reserves for increasing the production of feeds on the kolkhozes and sovkhozes of Belorussia. As the secretary of the Central Committee of the Communist Party of Belorussia, N. Dementey, notified the editorial staff, the bureau of the Central Committee of the Communist Party of Belorussia discussed the article. The critical remarks expressed in it toward party, soviet and agricultural agencies of the republic were recognized as correct, and the questions that were raised were considered crucial.

The bureau of the Central Committee of the Communist Party of Belorussia took note of the inadequate work of the ministries and departments of the agro-industrial complex, obkoms, gorkoms, and raykoms of the party as well as oblispolkoms and rayispolkoms for increasing the productive force of each hectare of meadow lands and fulfilling the plans for feed procurement. It made it incumbent on them to ensure the fulfillment of the comprehensive program for the development of feed production.

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CSO: 1824/100

LIVESTOCK

UDC 636.08

ORGANIZATIONAL PROBLEMS OF RSFSR DAIRY ENTERPRISES

Sverdlovsk URAL'SKIYE NIVY in Russian No 11, Nov 81 pp 2-4

[Article by A. Gerasimov, deputy chief of the Main Administration of Milk Production and General Animal Husbandry Problems of the RSFSR Ministry of Agriculture: "Dairy Complexes"]

[Text] In conformity with the program developed by the CC CPSU and the Soviet Government, a definite amount of work has been carried out at kolkhozes, sovkhozes and interfarm enterprises in the Urals economic region in connection with specialization, concentration and the conversion of animal husbandry over to an industrial technology for the maintenance of livestock and poultry -- the construction of complexes for the production of milk, beef, pork, wool, goat's down, mutton, eggs and poultry meat and for the raising of replacement heifers. A considerable number of farms were also converted over to the industrial technology following modernization.

The placing in operation of complexes and poultry factories and the modernization of farms have made it possible, at a majority of them, to raise the culture of production and the labor productivity of the workers. The problems concerned with an industrial technology at complexes for the production of beef and pork and at poultry factories were solved most successfully.

The problem of converting dairy animal husbandry over to an industrial technology is more complicated. Over a five-year period (1976-1980), the number of milk production complexes increased by a factor of 2-3. The operational results achieved by a number of them fully justified their purpose.

For example, let us take the complex of the Shilovskiy Sovkhoz in Sverdlovskaya Oblast. Here, during 1980, a year marked by unfavorable weather conditions, an average of 4,656 kilograms of milk was obtained from each of 800 cows. Each quintal of milk involved expenditures as follows -- 1.2 quintals of feed units; labor -- 2.9 man-hours and production cost -- 24 rubles and 46 kopecks.

At the Ordzhonikidzevskiy Sovkhoz in this same oblast, the annual productivity of the cows reached 4,500 kilograms or more, at the Rossiya Sovkhoz in Chelyabinskaya Oblast -- 4,100-4,200 kilograms and at the Polovodovskiy, Prikam'ye and Uralets Sovkhozes in Permskaya Oblast -- 3,100-3,500 kilograms.

At the same time, a considerable number of the complexes are still performing in an unsatisfactory manner: the normative schedules for reaching their planned capabilities for livestock productivity and for gross milk production are not being followed and, as a result, they are unable to achieve their planned labor productivity and output production costs.

The productivity of a considerable number of complexes is far from the figure planned. Last year, the milk yield per cow at 36 out of 91 complexes was less than 2,000 kilograms. The greatest yields were obtained in Tyumenskaya and Orenburgskaya Oblasts and in the Udmurtskaya ASSR.

Productivity was extremely low at a number of complexes. At complexes of the Zvezda Kolkhoz in Pritobol'nyy Rayon and the Komsomol'skiy Sovkhoz in Polovinskiy Rayon, Kurganskaya Oblast, placed in operation in 1976 and 1974, the average per cow productivity last year was 1,351 and 1,819 kilograms respectively, expenditures per quintal of milk -- 11.7 and 7 man-hours, feed -- 1.63 and 1.74 quintals of feed units and production costs -- 51 rubles, 82 kopecks and 35 rubles, 54 kopecks.

Similar situations prevail at the Novoloktinskiy Sovkhoz and the Kolkhoz imeni Kirov in Tyumenskaya Oblast, where the average milk yields were 1,118 and 1,363 kilograms respectively; at the Ryabkovskiy and Novorozhdestvenskiy Sovkhozes in Permskaya Oblast -- 1,551 and 1,441 kilograms, Bugalyshskiy Sovkhoz in Sverdlovskaya Oblast -- 1,597 kilograms; Rozhdestvenskiy and Miasskiy Sovkhozes in Chelyabinskaya Oblast -- 1,653 and 1,719 kilograms; the Mir Kolkhoz and Kivarskiy Sovkhoz in Votkinskiy Rayon in the Udmurtskaya ASSR -- 1,614 and 1,829 kilograms.

The principal cause of this unsatisfactory work -- failure to solve completely a number of organizational problems.

What is required in order for a complex to operate successfully? The following conditions are mandatory:

-- a strong feed base, one which will ensure complete and balanced rations for the livestock throughout the year;

-- regular deliveries of replacement animals that have been adapted to an industrial technology and are capable of ensuring an increase in the milk productivity of cows, from specialized enterprises or farms engaged in the raising of replacement heifers and non-calving young cows;

-- introduction of labor organization, accounting and systems for the maintenance and shipping of animals which will guarantee the timely appearance of rutting and the fruitful insemination of all non-pregnant animals, the treatment of hygienically sick animals, the protection of pregnancy and the ability to obtain healthy offspring;

-- strict observance of the zooveterinary rules for the maintenance and replacement of animals, so as to preclude the bringing in of infectious diseases and differentiated feeding of the animals depending upon their physiological condition;

-- constant training for and systematic improvements in the skills possessed by the personnel working at a complex.

Unfortunately, these conditions are not being carried out at many of the enterprises.

The chief concern is feed. In order to achieve the planned dairy productivity (hopefully 4,000 kilograms), each cow should annually be supplied with no less than 40-42 quintals of all types of feed, in a conversion for feed units, and 450-470 kilograms of digestible protein. Actually, at a majority of the complexes the availability of feed does not conform to the zootechnical norms, the ratios with regard to feed types are not being observed and the ration does not contain the required amount of protein, nor is it balanced in terms of mineral substances.

The situation with regard to feed for the winter indoor maintenance period is especially unfavorable. At a number of complexes, the availability of feed at the commencement of wintering does not exceed 55-60 percent of the requirements. The situation is especially unsatisfactory in the Udmurtskaya ASSR. The annual consumption (1980) of feed, taking fodder into account, also does not meet all of the requirements. For example, last year in Kurganskaya Oblast it amounted to only 67 percent of the requirements.

In accordance with the technology, long-lasting irrigated DKP's [dolgoletnoye kul'turnoye pastbishche; long-lasting cultivated pasture] -- minimum of 0.25-0.3 hectares per animal -- must be built as rapidly as possible at each complex. In actual practice, the situation is entirely different. There are no such pastures in the Udmurtskaya ASSR, DKP's are lacking at 10 out of 15 complexes in Orenburgskaya Oblast, in Permskaya Oblast -- at 3 out of 13, in Sverdlovskaya Oblast -- at 6 out of 20, in Chelyabinskaya Oblast -- at 5 out of 20 and in Tyumenskaya Oblast -- at 3 out of 8 complexes.

Quite often the group of feeds does not meet the zootechnical norms. The animal rations contain very little hay and root crops are lacking entirely in them at many complexes. A number of economic leaders are following the faulty practice of compensating for shortages in different types of feed through the use of concentrates, obtained in many instances from the state resources.

Straw constitutes a considerable proportion of the feed being supplied to animals on the overwhelming majority of farms. Naturally, a question arises regarding the organization of feed preparation work. Unfortunately, good feed preparation shops are still not available in all areas. The feed is being fed to the animals in the absence of proper preparation and this tends to lower the quality of the feed.

In addition to feeding, equal importance is attached to the acquisition and deliveries of replacement animals. The future productivity of the cows is dependent upon the quality of such acquisitions. A network of specialized enterprises and farms has been created in the oblasts and ASSR's in the Urals region for the purpose of raising high quality heifers. The former alone are annually producing more than 104,000 heifers (see Table).

In addition, replacement animals are being prepared at isolated farms. The creation of specialized enterprises and farms has made it possible to improve somewhat the quality of the animals being added to the principal herd. Over the past decade, the average pairing age for heifers was lowered from 21 to 19.6 months and the live weight at insemination increased from 291 to 304 kilograms. A specialized enterprise or farm has been assigned to almost every complex in Chelyabinskaya and Sverdlovskaya Oblasts for the purpose of supplying heifers. A similar practice is unfolding in other oblasts.

TABLE

Raising of Heifers at Specialized Enterprises in the Urals (thousands of head)

Oblast	Number of Specialized Enterprises	Number Being Raised	Heifers Sold During 1980	Total Number of Heifers Added To Main Herd	Proportion of Specialized Enterprises, in %
Kurganskaya	14	32.1	8.9	82.3	10.8
Orenburgskaya	12	9.8	3.3	96.0	2.4
Permskaya	28	35.4	10.8	54.3	19.9
Sverdlovskaya	24	57.8	20.9	64.2	32.6
Chelyabinskaya	18	65.7	21.2	79.3	25.7
Udmurtskaya ASSR	22	35.4	14.8	44.5	33.3
Tyumenskaya	20	31.7	13.4	51.7	25.9
Total	138	2678	93.4	472.3	19.7

However, in many areas a base for regular deliveries of replacement animals is not being created during the course of placing new dairy complexes in operation. The leaders of farms and local agricultural organs are striving to staff them using imported heifers, at times at the expense of valuable replacement animals. Although this practice has been condemned by the ministry, it nevertheless has still not been eliminated entirely. An even worse situation is when heifers are supplied to active complexes from conventional farms; this results in considerable culling out of the animals and in a tremendous shortfall in products.

Moreover, the quality of the replacement animals being raised at a number of specialized enterprises does not conform to the requirements: heifers are being inseminated before they are fully developed, when their live weight is not sufficiently high. Certainly, it is futile to expect a high productivity from them.

Last year the average weight for heifers sold during their third month of pregnancy in Kurganskaya Oblast was 362 kilograms, Orenburgskaya -- 374, Permskaya -- 369, Sverdlovskaya -- 375, Chelyabinskaya -- 383 and in the Udmurtskaya ASSR -- 372 kilograms. Lower figures were recorded at the Rodniki and Zaural'skiy Sovkhozes in Kurganskaya Oblast -- only 304 and 335, Ural Sovkhoz in Orenburgskaya Oblast -- 305, Gumbeyskiy Sovkhoz in Chelyabinskaya Oblast -- 335 and at the Druzhba Sovkhoz in the Udmurtskaya ASSR -- 310 kilograms.

It was not until 1979 that a decision was made at the Komsomol'skiy Complex in Kurganskaya Oblast as to who would supply the replacement animals, whereas this question still has to be resolved at the Zvezda Complex. This is typical of other oblasts as well. Thus the problem of creating reliable suppliers of high quality heifers, for delivery to enterprises newly placed in operation or as replacements for cows removed from operations, is still awaiting a solution.

The experience in the operation of complexes has shown that the livestock maintenance technology employed at them, as called for in the plans, does not ensure the timely mating of cows or the production of a maximum number of offspring. A considerable number of cows remain barren. For example, last year 64 calves were obtained per 100 cows in Kurganskaya Oblast, in Tyumenskaya Oblast -- 73. The situation with regard to reproduction of the herd has turned out to be extremely unfavorable at a number of enterprises. At the Druzhba Complex in Kurganskaya Oblast, 42 calves were obtained per 100 cows during 1980, at the Yegorshinskiy Complex in Sverdlovskaya Oblast -- 65, the Kivarskiy Complex in the Udmurtskaya ASSR -- 66 and at the Put' K Kommunizmu Complex in Tyumenskaya Oblast -- 57 calves per 100 cows.

This is the result of violations of and imperfections in the technology employed for maintaining the cows. On many farms, no effort is made to provide active exercise for the livestock during the winter indoor maintenance period. In the facilities proper, it is extremely difficult to select out those animals which are in heat.

The introduction of the flow line-departmental system of cow maintenance, in addition to other factors, is solving to a considerable degree those problems concerned with raising the fruitfulness of the cows. The experience and positive results arising from this are already in evidence at the Severskiy Sovkhoz in Sverdlovskaya Oblast, Bol'shevik Sovkhoz in Permskaya Oblast, Sovkhoz imeni 50-Letiya SSSR in Chelyabinskaya Oblast and many others. Unfortunately, the flow line-departmental method is being introduced into operations very slowly, despite the fact that opportunities are available in all areas this year for carrying out this work.

An analysis carried out in May and June of this year of the measures developed on the farms for improving the work of the complexes has shown that some leaders approached this problem in a formal manner. For example, an increase in feed production is not being backed up by measures aimed at improving the forage crop structure, nor are measures for raising cropping power reflected. On a number of farms the sources for delivering the replacement animals have still not been defined and the conversion over to the flow line-departmental system is planned for the remote future.

By no means can we agree with this.

The local agricultural organs and the leaders of kolkhozes and sovkhozes must once again examine the measures planned and define the specific measures for implementing them. This will enable them, in the near future, to convert the complexes into exemplary enterprises for the production of milk.

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OVERVIEW OF, EXPECTATIONS FOR USSR LIVESTOCK WINTERING

Moscow AGITATOR in Russian No 21, Nov 81 pp 2-5

[Article: "Preparation of Farms for the Winter"]

[Text] This autumn the animal husbandry workers have many concerns. They are striving, as best as possible, to prepare their farms for winter, utilize their farm in an efficient manner and to supply the country with more meat, milk and other products.

Following a review of their potential, the collectives of kolkhozes, sovkhozes, farms and complexes are undertaking raised obligations for the forthcoming livestock wintering period.

In Khersonskaya Oblast, for example, approval has been given for the initiative displayed by the animal husbandrymen in Novovorontsovskiy Rayon with regard to increasing the production and sale of meat and dairy products during the winter period. A month's campaign devoted to preparing the farms and feed preparation shops for winter was carried out in September. Special attention was given to the heating of the facilities, sanitary cleaning, civic improvements on the farms and to equipping the accessroads and feed sites. Recreation and reading rooms, rest rooms and stations for providing medical and trade services for the animal husbandrymen were created on each farm.

The rayon's farms are evidencing concern for augmenting the supplies of coarse and succulent feed. By the middle of September, 29 quintals of feed units had been laid away per conventional head of cattle, or 2.7 quintals more than by this same date last year.

The rayon's party organizations are displaying constant concern for supplying the farms with personnel. More than 70 communists and komsomols have been sent to the farms for the winter period in animal husbandry, with the following elements being created on these farms: 19 party and 11 party-komsomol groups, 45 people's control posts and groups, 39 deputy groups and 15 posts of Komsomol'skiy Prozhektor [Komsomol Searchlight]. This has promoted the efficient organization of operations in the animal husbandry brigades and feed preparation shops and it is making it possible to realize effective use of material and labor resources.

The animal husbandrymen in Cherkasskaya Oblast, the initiators of a socialist competition to increase the production and sale of meat and milk to the state, have set a fine example of high organizational ability and all-round utilization of the potential available for increasing the output of farms. Over a period of 9 months, the productivity of the dairy herd on farms throughout the oblast increased by 146 kilograms above the figure for this same period last year and the average delivery weight of the large-horned cattle was 412 kilograms. Meat procurements increased by 5 percent, milk -- by 11 and eggs -- by 8 percent. Workers on farms in Uzbekistan, Azerbaijan, Stavropol'skiy Kray and in Kurganskaya, Kemerovskaya, Krymskaya, Turgayskaya and a number of other oblasts are providing a fine increase in animal husbandry output during the autumn period.

However, this is not the situation in all areas. Many farms in Ryazanskaya, Tul'skaya, Kurskaya, Novosibirskaya and Sumskaya oblasts still lag behind in their milk yields. In recent months, reductions have been recorded in the daily weight increases and delivery weights of large-horned cattle at kolkhozes and sovkhozes in Lithuania, Moldavia and in Pskovskaya, Kalininskaya and Kuybyshevskaya oblasts. By no means are these derelictions justified. The majority of the farms have adequate supplies of coarse and succulent feed available, pasture grass is growing well in the central and southern regions and the potential is available in practically all areas for organizing full-value feeding for the dairy herd and fattening regimes for the animals. The agitators and political information specialists, using specific examples having to do with their rayon or farm, must publicize on an extensive scale the experience of leading collectives and furnish assistance to the animal husbandrymen in utilizing more fully the reserves that are available for increasing the output of the branch.

When making preparations for discussions to be held in the brigades and on the farms, one should ideally acquaint himself with the documents of special committees, with regard to checks carried out on the readiness of farms and complexes for the winter period. In addition, use should be made of the data provided by these committees concerning the receipt and placement of feed in storage and also of the monthly and 10-day plans for the consumption of forage resources.

A great amount of work still remains to be carried out in order to supplement these resources. The ensiling of corn and the tops of root crops must be completed in an organized manner, the straw and chaff must be gathered up completely from the fields, the aftergrowth must be cut down on the meadows and the feed must be delivered to the farms and livestock wintering areas in a timely manner. The agitators and political information specialists must direct the rural workers towards utilizing all available reserves for accumulating coarse and succulent feed and procuring coniferous meal and the waste products of vegetable production.

Special attention must be given to the effective use of concentrates. Nor is this a matter of simply economizing in the use of grain, although this is certainly an important factor today. An unjustified increase in the proportion of grain in the rations of ruminant animals, owing to a deficit of coarse and succulent feed, can also bring about a shortfall in output and a reduction in the output and preservation of newly born young stock.

The rational and thrifty consumption of forage resources is closely associated with organization of the preparation of feed for feeding. The preparation of feed mixtures for individual types and age groups of livestock is making it possible to adhere strictly to the ration structure prescribed by the specialists, to balance the rations better in terms of protein and other nutrients and to employ concentrated feed and mineral and other additives more effectively. Thus a priority task is that of preparing all feed preparation shops, ensuring that they commence operations beginning with the first days of the indoor maintenance period and organizing the processing of feed at each installation and on each farm. In those areas where feed preparation shops have not yet been created, it will be necessary to establish special facilities and at least equip simple feed-preparing houses and feed sites.

In Boguslavskiy Rayon of Kiyevskaya Oblast, for example, there are 21 feed preparation shops at 14 farms, with eight of these having operated during the summer period. Repair brigades which included pensioned machine operators and farm workers were created here in August for the purpose of preparing these shops for winter. In addition, 11 feed-preparing houses and 18 mechanized feed sites were equipped; these operate as branches of the feed preparation shops. All farms carry out the mincing and thermochemical processing of coarse feeds and they prepare enriched feed mixtures. The rayon's kolkhozes and sovkhozes received a great amount of assistance from supporting organizations. During the autumn period, these organizations carried out 65,000 rubles worth of repair work on the farms and in the feed preparation shops and they built 3.7 kilometers of intrafarm hard surface roads. Domestic facilities on the farms were repaired and equipped. All of this is creating a good foundation for highly productive labor by the animal husbandrymen and it is helping them to intensify their output production in a confident manner.

Fine experience has been accumulated in Moscow, Gor'kovskaya, Sverdlovskaya, Khar'kovskaya and many other oblasts with regard to industrial enterprises and construction and other organizations furnishing assistance to the kolkhozes and sovkhozes in the repair and equipping of farms and feed preparation shops with missing equipment and in the construction of new feed processing installations. The collectives of industrial enterprises in Khar'kovskaya Oblast, for example, created approximately 100 multi-purpose brigades for the carrying out of repair work on the farms. The enterprises produced and delivered more than 460 feed processing machines and mechanisms to the farms, including feed distributors, loaders, mixers and belt conveyers for the issuing of feed. This made it possible to equip and place all of the feed preparation shops in operation and to organize the processing of feed in all areas.

However, on many farms, especially in Kazakhstan, Kirgizia, Estonia and in Novgorodskaya, Tul'skaya, Penzenskaya and some other oblasts, a shortage of feed preparation shop capability is being experienced and by no means have the existing installations been completely prepared for operations. The readiness of feed preparation shops to carry out the heat treatment of straw is low on many kolkhozes and sovkhozes in Smolenskaya, Tyumenskaya and Amurskaya oblasts.

It should be remembered that simple mincing and even the steaming of straw and chaff improve only the eatability of feed, with almost no change taking place in the nutritional value of the feed. At the same time, the processing of coarse feed using liquid ammonia, a lime solution, caustic soda or soda ash makes it possible to raise the nutritional properties of forage by a factor of 1.5-2 and accordingly increase the production of products obtained on the basis of this feed. Thus the thermochemical treatment of coarse feed should be organized on each farm and concern should be displayed for acquiring the maximum possible amount of soda ash and caustic soda and creating supplies of lime. A deficit in chemical agents can be compensated by the use of liquid ammonia and ammonia liquor, which are used for treating straw and coarse-stalk hay directly in the ricks and stacks and also for the ammoniation of pulp residue and silage on the farms. Just 1 ton of alkali alone makes it possible to treat 25 tons of straw, raise its nutritional value by a factor of 1.5 and obtain 5,000 additional feed units.

In their discussions, the agitators and political information specialists must uncover reserves for augmenting the feed balance of the farms, increasing the production of animal husbandry products through the introduction of more efficient forage treatment methods and actively promote conditions wherein all feed will be fed only in processed and well prepared form and produce the greatest return.

Very special value is attached here to ensuring the rational use of grain forage. At the present time, the farms are receiving the principal part of their concentrates in the form of mixed feed from state and interfarm enterprises. However, only a small amount of internally produced grain is being used for feed purposes and considerable over-expenditures of grain are taking place in those areas where it is not balanced in terms of protein and other nutrients. Such over-expenditures are especially great on those farms where the vicious practice of alternate feeding of individual types of grain forage has not yet been overcome. For example, let us take the Ploskovskiy Sovkhoz in Kiyevskaya Oblast. Here the production of feed mixtures from different types of grain (barley, oats, peas, corn, waste products of wheat) has been organized in crushed form and the return from the grain forage is considerably higher. During the autumn months, 16-17 kilograms of milk are obtained daily here per cow.

At the present time, practically every farm is capable of preparing enriched grain forage mixtures containing grass meal, defluorinated phosphates and other mineral additives and premixes. Tests conducted by scientific institutes reveal that during the fattening of large-horned cattle and sheep a considerable portion of the daily norm for grain forage can be replaced by grass meal and grass cuttings, complete ration granules and briquettes. In a number of regions in Georgia, Moldavia, L'vovskaya, Minskaya, Kurskaya, Belgorodskaya and other oblasts, straw, dry pulp residue, pomace from the processing of grapes and fruit, potatoes and the waste products from meat combines and poultry raising enterprises are also included.

All animal husbandry workers must master as rapidly as possible this experience in raising the effectiveness of use of concentrates and substituting other feeds for a portion of the grain in rations. And it is the direct responsibility of the agitators and political information specialists to furnish them with assistance in this important work.

This task is particularly acute in swine raising, which uses almost one third of the country's grain feed.

During the past few years, some specialists and farm managers have begun to show a preference, without justification, for the exclusive use of concentrated feeding for swine. At the same time, the experience of many leading farms in Belorussia, the Baltic area and other regions reveals a high effectiveness of differentiated feeding for different sex and age groups of swine. At the Industriya Sovkhoz for the breeding of swine in Minskaya Oblast, the daily rations for swine brood stock and animals undergoing fattening regimes include 3-4 kilograms of mixed silage, the basis of which is potatoes, one half kilogram of grass meal and 1.5-2 kilograms of concentrates. Here the daily weight increases for the swine exceed 400 grams. This year the farm plans to procure no less than 800 tons of mixed silage -- 3 tons per principal sow. This valuable experience is being disseminated to other farms throughout the oblast. For several years now the Novaya Zhizn' Kolkhoz in Nesvizhskiy Rayon, Krasnaya Zvezda Sovkhoz and the Sovetskaya Belorussiya Kolkhoz in Kletskiy Rayon have been laying in mixed silage for swine consisting of potatoes and other components. The preparation of dry farina has been organized at a number of farms in Lyubanskiy Rayon. The use of non-food potatoes and the feeding of mixed silage to swine is making it possible for the oblast's farms to realize a savings of up to 25,000 tons of forage grain annually. This is an impressive result! The experience of the Belorussian swine breeders in the rational use of grain forage is deserving of great attention and maximum support.

The rational use of the waste products of enterprises of the food industry, public catering and also the waste products of the population constitutes a substantial reserve for supplementing the forage resources and increasing meat production on this basis. In many cities and worker's settlements in the RSFSR, the Ukraine, Uzbekistan and Belorussia, the organs of municipal services, having organized the collection of food remnants, supply the fattening enterprises with thousands of tons of valuable feed daily. The sovkhozes Belaya Dacha and X Let Oktyabrya in Moscow Oblast and the swine raising combines Novyy Svet in Leningrad Oblast and imeni 50-Letiya Oktyabrya in Kalininskaya Oblast are employing food scraps extensively and they are raising from 50,000 to 100,000 swine annually. Here the proportion of food scraps in the daily rations for the swine is 40-45 percent.

At the Zarech'ye Sovkhoz in Kirovskaya Oblast, nine special motor vehicles have been equipped for delivering the food scraps. Food scraps are collected from 130 pre-school institutes in the oblast center, five boarding schools, 49 schools, seven bakeries, 200 dining halls and from bases of the fruit and vegetable trade. In addition, the residents of Kirov collect waste products from their tables in pails located on staircase landings and there are roughly 4,000 such pails. Up to 90 tons are collected daily. The farm pays 11 rubles for each ton, including 9 rubles and 50 kopecks to the collectors. The drivers receive more than 1 ruble for each ton of feed delivered.

The food scraps delivered to the farm are sent to the feed preparation shop. Following sorting, they are loaded into boiling kettles and treated with steam for a period of 1 hour, at a temperature of 120° and a pressure of one and a half atmospheres. One feed unit costs the farm 6 kopecks and thus it is able to realize considerable profit from the fattening of its animals.

The productivity and preservation of the animals are associated to a considerable degree with the sanitary condition of the farms and with the carrying out of prophylactic and medical-veterinary measures.

Prior to the livestock being assigned to indoor maintenance, the facilities must be disinfected and all rats and mice exterminated. In addition, the animals should be inspected. All sick and weak animals should be placed in separate groups and provided with intensified feeding and medical treatment. Last year, 348 medical-prophylactic stations were organized on farms in the Kirghiz SSR. Approximately 100,000 head of large-horned cattle and almost 2 million sheep passed through these stations during the winter period. The work of such stations is making it possible for the republic's farms to achieve a high preservation rate for their livestock each year and to improve the quality of their animal husbandry products.

The veterinary service also plays a substantial role in the effective use of feed, through the preparation of various mineral additives and biologically active preparations. Many laboratories are exercising systematic control over the metabolic processes of the animals and, on this basis, they issue recommendations with regard to adding certain nutrients, antibiotics, vitamins and microelements to the rations. Special biochemical laboratories have been created for this purpose on a number of farms in Krymskaya Oblast. The specialists believe that this measure has promoted a high level of livestock productivity, an average yield of 94-96 calves per 100 cows and good preservation for the young stock.

The animal husbandry workers are striving to make a worthy contribution towards solving the tasks assigned by the 26th party congress and supplying the country with greater quantities of products. The party organizations and the political agitation activists must organize their competition in all areas, issue incentives to the leading workers, disseminate their experience and inspire the people to perform exemplary work.

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LIVESTOCK

OVERVIEW OF DAIRY FARM PRODUCTIVITY

Moscow SEL'SKAYA ZHIZN' in Russian 24 Dec 81 p 1

[Article by M. Glinka, zootechnician: "Productivity of Dairy Farms"]

[Text] The third month of the indoor maintenance period is at hand. It is marked by complicated conditions -- this year the forage supplies on the farms are noticeably less than those for last year. The kolkhoz and sovkhoz livestock breeders are countering the winter difficulties with good organization, discipline, knowledge and expertise. Several days ago, a meeting was held in Moscow for milkmaids from the capital oblast. They analyzed thoroughly the status of affairs on the farms and they resolved to produce and sell to the state no less than 1.5 million tons of milk during 1982. This is a realistic task. It has been carried out on more than one occasion in the past.

Everything is dependent upon the productivity of the dairy herd. There were times when the Moscow milkmaids obtained approximately 3,400 kilograms of milk per cow annually. Last year they obtained only 3,023 kilograms. And over a period of 11 months this year, 303 more kilograms were lost. At the present time, owing to selfless work on the part of the milkmaids, herdsmen and forage personnel, the reduction in the milk yields has been brought to a halt. Although the specific (per head of cattle) supplies of feed in the oblast are almost 12 percent less than those for last year, nevertheless the state is obtaining roughly 100 more tons of products daily from this area than it did at this same time last year. But the increase achieved is still not sufficient for carrying out the obligation. "At the present time, we must achieve a daily increase in milk sales of 150-170 tons, or 5-6 percent more than during the same period last year," wrote the leading milkmaids in an appeal addressed to all agricultural workers in the oblast, "and commencing with the first days of the new year, we must provide a daily increase of 10-13 percent."

An increase in cattle productivity is today becoming the chief task of workers attached to dairy farms and complexes. In addition to fulfillment of the plans for selling products to the state, the entire effectiveness of the branch is dependent upon such an increase being realized. The livestock breeders on many farms throughout the country intend to increase the productivity of their farms during the winter. In Stavropol'skiy Kray, for example, a competition initiated by workers in Apanasenkovskiy Rayon is being expanded. These workers have vowed to obtain no less than 1,750 kilograms of milk from each cow during the indoor maintenance period and to increase the delivery weight for large-horned cattle to 430 kilograms. These leading workers remained true to their word. The rayon was the first in the kray to fulfill the state procurement plans for all types of farm products. Yes and at the present time the milk yields and weight increases are exceeding to an appreciable degree the figures for last year.

It is precisely this method for increasing the production of animal husbandry products -- a maximum increase in the productivity of the cattle -- that has been selected by those leaders who display genuine concern for raising the efficiency of the branch. Indeed, only in this manner will it be possible to carry out the important task of this current five-year period -- achieving a considerable increase in the yield of products from each head of cattle. At the same time, a second most important goal is being achieved -- feed expenses per unit of output are decreasing and the return from feed is increasing. This is especially important in view of the forage deficit: the scientists have estimated that each additional feed unit used for raising the productivity of cows furnishes 1.4 times more additional milk than a similar value invested in increasing the number of animals.

Over the past few months, the greatest productivity in the milking herd was achieved on farms in Estonia, where an average of 3,266 kilograms of milk per cow had been obtained prior to 1 December. However, this level was 61 kilograms or 2 percent lower than the figure for last year. As a result, the gross milk yield decreased. There is one especially alarming fact -- the continuing decline in milk yields -- during the initial months of the wintering period, the milk yields declined another 43 kilograms compared to the figures for last year.

The most noticeable increase in milk production -- 106 percent -- was achieved by the livestock breeders in Uzbekistan. This was the result mainly of raised milk yields -- since the beginning of the year, 2,357 kilograms of milk have been obtained from each cow, compared to 2,284 kilograms during the January - November period of last year. This increase is continuing throughout the winter months. During October and November, more milk was obtained from each cow on farms in Belorussia, Azerbaijan, Lithuania, Latvia, Tajikistan and Armenia than was the case 1 year ago.

In the Russian Federation, increases of 5 percent or more in the gross milk yield have been achieved since the beginning of the year by workers on dairy farms in the Kalmytskaya, Kabardino-Balkarskaya, Checheno-Ingushskaya and Yakutskaya Autonomous Republics, in Stavropol'skiy Kray and in Astrakhanskaya, Kurganskaya, Kemerovskaya and Irkutskaya Oblasts. It is interesting to note that in the majority of instances such growth was achieved as a result of raised milk yields, that is, intensification of the branch.

The experience of livestock breeders not only on individual farms but also in entire rayons and oblasts, reveals: that it is possible to increase the productivity of farms even during the winter. During the first 2 months of the indoor maintenance period, increases were achieved (compared to last year's levels) in the milk yields of cows in the Bashkirskaya and Karel'skaya Autonomous Republics and in Bryanskaya, Kaluzhskaya, Smolenskaya, Yaroslavskaya, Belgorodskaya, Lipetskaya, Penzenskaya, Orenburgskaya, Tomskaya, Amurskaya and a number of other oblasts.

Unfortunately, not all of the farm leaders and specialists or workers attached to local agricultural organs are applying themselves in real earnest to the intensification of dairy cattle husbandry. Thus the plans of kolkhozes and sovkhozes in Krasnoyarskiy Kray, for selling milk to the state, have been disrupted for the third year in a row. Last year the milk yield here decreased by 82 kilograms and during 11 months of this current year -- by 63 more kilograms. An increase in the number of animals did not improve the situation: the gross production of milk this year decreased by more than 9,000 tons.

Although over the past 2 months the productivity of the herd in Kalininskaya Oblast increased somewhat, nevertheless it remained very low in the Russian Federation -- 129 kilograms of milk per cow since the beginning of wintering and 49 kilograms in November. Since the beginning of the year, only 1,412 kilograms of milk have been obtained here per cow -- almost 9 percent less than for this same period last year. As a result, output production has decreased and the marketability of the milk has dropped to 82 percent.

These are extreme examples. But for the RSFSR as a whole, the milk yield for cows decreased by 3.5 percent over a period of 11 months, with a corresponding decrease taking place in the production of milk.

The period of mass calving operations has arrived at the dairy farms. Extreme importance is being attached to increasing the milk yields of all newly-calved cows, such that next year it will be possible to realize a considerable increase in their productivity and, on this basis, increase the production and sale of milk to the state and raise the efficiency of the farms.

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REGIONAL DEVELOPMENT

COOPERATION BETWEEN SCIENTISTS, FARMERS IN SIBERIA DESCRIBED

Moscow IZVESTIYA in Russian 23 Sep 81 p 2

/Article by V. Filatov, chairman of the executive committee of the Novosibirskaya Oblast Soviet of People's Deputies, Novosibirsk: "Scientists for Rural Areas"/

/Text/ Positive results in an increase in the production and sale of grain, milk, vegetables and some other products of agriculture to the state have been attained in Novosibirskaya Oblast in the last few years. On the basis of the results of socialist competition in 1980 the oblast was awarded the Challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Central Committee of the Komsomol.

However, the attained level does not meet all the needs for agricultural products. The oblast's agricultural workers understand this well and persistently seek the potentials for and ways of ensuring the necessary production volume.

The scientists of the Siberian Department of the USSR Academy of Sciences, the Siberian Department of VASKhNIL /All-Union Academy of Agricultural Sciences imeni V. I. Lenin/, the agricultural institute and other scientific institutions in Novosibirsk take an active and direct part in this work. The oblast's planning and agricultural bodies together with the scientists of VASKhNIL developed an overall program for an increase in the yield and production of grain and fodder, which was approved at the plenum of the oblast party committee. It envisages an annual gross grain output of up to 3.4 or 4 million tons and an annual gross fodder output of up to 5 million tons of fodder units.

For the purpose of the most rapid introduction of the results of scientific studies into agricultural production 22 farms in the oblast were defined as support farms. They are becoming a school for the application of the achievements of scientific and technical progress.

This collaboration produces good results. The Iskitimskiy Sovkhoz--a support point of the Siberian Department of the USSR Academy of Sciences--has become one of the best farms.

The close relationship between scientists and the collectives of the Bol'shevik Kolkhoz, the Sibir' Kolkhoz, the Berdskiy Sovkhoz, the Chikskiy Sovkhoz and many other farms helped them to attain a stable growth of the production of all types of agricultural products.

Special attention is paid to an increase in the production of grain--the basic product of agricultural production. The possibilities of expanding the areas sown with grain crops in the oblast are limited. The increase in the production of grain should be attained mainly as a result of a significant rise in its yield. For this the agrotechnology of grain crop cultivation is based on new technological studies by the Siberian Department of VASKhNIL and its institutes of plant growing, fodder, farming and chemicalization. Scientists have proposed efficient crop rotations and a wide introduction of soil protective cultivation of land.

Grain growers feel real support on the part of Siberian breeders. The Novosibirskaya-67 wheat variety developed by them proved its value. All things being equal, it produces a higher harvest than that produced by other regionalized varieties. Today the areas sown with this wheat occupy almost 1 million hectares. The areas sown with the Korotkostebel'naya-54 and Tetra rye varieties, the Narymskiy oat variety and other varieties, which are highly productive and resistant to lodging, are increasing.

The Siberian Scientific Research Institute of Plant Growing transferred new varieties of grain crops, which produced good results on experimental plots, for state testing. They are as follows: wheat--Novosibirskaya-81 and Baganskaya-2; barley--Novosibirskiy-80; peas--Novosibirskiy-1.

For our oblast, which has large-scale animal husbandry, providing this sector with high-grade feed for the entire year is an important task. For this purpose the executive committee of the oblast soviet approved a five-year plan for the development of the feed base and for an improvement in the quality of feed. The task of transforming feed production into an independent highly mechanized sector of agriculture was set.

The structure of fodder crops includes more and more such valuable crops as rape and mixed sowing of corn and sunflower seeds for silage with soybeans and other pulse crops. For example, the growing of corn for silage in a mixture with soybeans has been practised at the Vorob'yevsk Interfarm Complex for the Fattening of Large-Horned Cattle for several years. The farm obtains a high harvest of green fodder with a high content of protein.

A new variety of early ripening and highly productive vetch--Novosibirskaya--developed by the scientists of the Siberian Department of VASKhNIL is beginning to become widespread on fodder land.

The oblast has vast hayfields and pastures. However, a significant number of them are located on solonets. They are unproductive, especially during dry years, which, unfortunately, are not rare in Siberia. The scientists of the Siberian Department of the USSR Academy of Sciences and the Siberian Department of VASKhNIL worked out recommendations for an improvement in fodder land on solonets. A vast program for reclamation work was prepared on the basis of such recommendations. Its implementation during the 10th Five-Year Plan made it possible to improve more than 200,000 hectares of meadows and pastures on solonets soil. Their productivity increased considerably.

Under the conditions of frequent dry years of major importance is the performance of work on the irrigation and watering of vast agricultural land in the Kulunda Steppe and of reclamation work in the Baraba Lowland. As the technical and economic substantiations of Kulunda's irrigation and the technical and economic report on Baraba's reclamation show, the development of this land would make it possible to greatly increase the feed base and on this basis the production of livestock products, that is, primarily milk and meat, as well. Unfortunately, despite the great importance of these problems, they are examined too slowly in central planning and water management bodies.

Party, Soviet and agricultural bodies in the oblast pay special attention to the problems of preservation and increase in the population of all types of livestock and poultry in all farm categories and of a significant rise in the productivity of animals.

All these problems were examined at a recent session of the oblast soviet. The tasks for the 5-year period were determined. Plans were made to increase the production of milk to 1.5 million tons and of meat to 300,000 tons by the end of the five-year plan.

To fulfill these tasks, kolkhozes and sovkhozes, along with increasing feed production, are engaged in a wide reconstruction of livestock farms, their provision with modern equipment and overall mechanization of labor intensive processes. The organization of labor of livestock breeders is being improved. Many farms are already completing this work. They include the Priobskiy Sovkhoz, the Oktyabr'skiy Sovkhoz, the Blyudchanskiy Sovkhoz, the Krasnoye Znamya Kolkhoz, the 40 Let Oktyabrya Kolkhoz and others.

Beef production is placed on a new basis. The establishment of an interfarm fattening association and of specialized farms for the breeding and fattening of large-horned cattle on an industrial basis makes it possible to attain large daily weight gains and to considerably increase the delivery weight of livestock. The scientists of the Siberian Department of VASKhNIL also provided great assistance in the solution of this problem.

Programs for an increase in the production of pork and poultry meat have been developed in the oblast. The construction of the second stage of a hog breeding complex for 108,000 head is being completed and a broiler factory is being built.

Milk production is to be increased primarily in the suburban zone, which will require intensification of feed production there.

Novosibirskaya Oblast has a large number of lakes. To utilize these reservoirs for a considerable increase in fish production--this task was set at the oblast party conference. A plan of measures to increase the reproduction and output of fish 2.5- to 3-fold was developed with the active participation of the workers of SibrybNIIproyekt.

In accordance with scientifically substantiated nutrition norms in Siberian regions scientists attach special importance to the cultivation of vegetables and berries and to the supply of fresh fruits for the population. These products should make up for the shortage of vitamins in the ration of the resident of Siberia.

The Plodovoshchkhoz Agroindustrial Association that is being formed will help to partially solve this problem. Greenhouse and hotbed facilities will expand considerably. Storage facilities for vegetables and potatoes will be built directly on sovkhozes in order to avoid difficulties in the transportation of this multi-ton output in fall.

A great deal can be done locally. However, the climatic conditions do not make it possible to meet the population's needs for fruits and melon crops from local production. They must be brought to Siberia from the country's southern oblast in an ever greater quantity.

The economists of the Siberian Department of the USSR Academy of Sciences and the Siberian Department of VASKhNIL developed efficient schemes for such a food exchange, taking into consideration that, in turn, Novosibirskaya Oblast exports a significant quantity of dairy and meat products, grain and potatoes.

It is very important for the USSR State Planning Committee to closely study these proposals by scientists and to realize them when solving problems of the import and export of agricultural products.

This year there were extremely unfavorable weather conditions on the oblast's territory. The severe drought did not make it possible to obtain the planned harvests of grain and other crops. Under these conditions party, Soviet and agricultural bodies take measures to gather harvests in an organized and rapid way, to avoid losses, to save every ear of grain and kilogram of potatoes, vegetables and fodder, to store seeds and to plow for winter fallow.

The oblast's industrial enterprises continue their work on the establishment of subsidiary farms. The assortment of their output is quite wide, that is, from meat to vegetables and honey.

In his report at the 26th party congress Comrade L. I. Brezhnev highly evaluated the initiative of the oblast party organization in developing links between science and production. Party and Soviet bodies try to consolidate and augment everything that contributes to the most rapid development of science and to the introduction of its achievements into production.

The development of the oblast's food program on the basis of the achievements of science and advanced experience is a serious test of the work of local soviets and of their planning and agricultural bodies in ensuring the oblast's overall and social development.

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AGRO-ECONOMICS AND ORGANIZATION

IMPROVED PLANNING, ADMINISTRATION OF AGRICULTURE URGED

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[Article by P. Paskar', 1st deputy chairman of USSR Gosplan: "Planned Management of the Economy, Improvements in Administration and Planning in Agriculture"]

[Text] The 26th CPSU Congress adopted a broad program for further improving the welfare of the people. It includes improving all aspects of life for our Soviet people -- consumption and housing, culture and recreation and living and working conditions.

Agriculture and the entire agroindustrial complex will play a tremendous role in carrying out this program. At the present time, priority importance is being attached to improving the supply of food goods and also industrial consumer goods for the population.

In the interest of solving this problem, special importance is being attached to developing a special food program as a component part of the Eleventh Five-Year Plan. The foundation for this program is further improvements in agriculture. The chief operational trends in this branch were outlined in the decisions handed down during the July (1978) Plenum of the CC CPSU and confirmed by the 26th party congress.

The immediate task is that of raising the production of those types of agricultural products, the shortages of which are causing interruptions in supply. Here we have in mind mainly animal husbandry products. In the Accountability Report by the CC CPSU to the 26th party congress, Comrade L.I. Brezhnev referred to animal husbandry as a vital front for work in the rural areas.

The Eleventh Five-Year Plan calls for the average annual production of meat to be increased to 17-17.5 million tons (in dressed weight), milk -- to 97-99 million tons, eggs -- to no less than 72 billion and wool -- to 470,000-480,000 tons.

The central task in farming is that of increasing the production of grain. During the Eleventh Five-Year Plan, the average annual gross yield of grain is to be increased to 238-243 million tons, including pulse crops -- to 14-15 million tons.

One urgent task mentioned during the congress is that of radically improving feed production and satisfying the feed requirements for public animal husbandry and also for livestock being maintained on a private basis by citizens.

For the new five-year period, the task has been assigned of achieving an average annual production of raw cotton of 9.2-9.3 million tons and raising the average annual production of sugar beets to 100-103 million tons. Further improvements must be realized in the production, variety and quality of potatoes, vegetables and melon crops and in their preservation and losses must be sharply curtailed.

The overall gross output volume for agriculture must be increased by 12-14 percent.

The party's economic policies are founded upon a thrifty attitude towards public property and the ability to utilize everything we possess in a complete and expedient manner.

"If we are discussing agriculture as a whole" emphasized Comrade L.I. Brezhnev during the 26th CPSU Congress, "then it is confronted by the same chief problem facing other branches of the national economy -- raising efficiency and quality."

In the future the country will supply agriculture with considerable financial and material resources and continue the planned conversion of this branch over to an industrial basis. But the center of gravity, as noted during the congress, is now shifting over to the return to be realized from capital investments, growth in the productivity of agriculture and to intensifying and improving its contacts with other branches of the agroindustrial complex.

All of this objectively requires active work aimed at improving the planning for and stimulation of agriculture and raising the level of all planning and economic work at kolkhozes and sovkhozes.

Under modern conditions, further planned and stable development for agricultural production is possible only on the basis of the development of an entire complex of national economic branches specializing in the logistical equipping of agriculture and in the procurement, transporting, storage, processing and sale of its products.

In view of the above, we should ideally examine the questions concerned with improving planning and administration and the issuing of material incentives, not only in agricultural production but throughout the national economy as a whole.

Improvements in the economic mechanism under present conditions are based upon continuity in the methods employed, and justified in actual practice, for planning and administration and they call for improved development and increased efficiency. Administrative and planning activity at all levels is directed towards achieving high final national economic results.

When developing plans and evaluating their fulfillment, priority importance is attached to satisfying the public requirements through the rational use of material, labor and financial resources.

Such an approach must be a dominating factor when determining the rates and proportions for developing the national economy and its individual branches and for solving other planning tasks. Towards this end, the opportunities for consumers to influence the formation of the production plans are being expanded.

Thus the mechanism for administration and planning should ensure more complete satisfaction of the requirements of production and the population for specific types of products, based upon improved efficiency and quality.

In addition, they began treating the social problems more thoroughly in the plans and greater attention is being given to measures for protecting nature and developing external economic relationships.

For the successful solving of social and economic problems and accelerating scientific-technical progress, more and more importance is being attached to a system of mutually coordinated long range and current plans. At the present time, such a system has been defined rather clearly and procedures have been established for the development of plans. The system includes: an all-round program for scientific-technical progress for 20 years (with a breakdown by five-year periods); the principal trends for the economic and social development of the USSR for 10 years (by five-year periods); a five-year plan for the economic and social development of the USSR (by years) and an annual plan. Such work organization ensures continuity of action for the long term plans and the required degree of stability for them. In particular, this is achieved by virtue of the fact that once every 5 years the required refinements are introduced into the overall program for scientific-technical progress and the principal trends for the economic and social development of the USSR and at the same time the tasks for the next five-year plan are stipulated in them.

The plans also call for an evaluation of fulfillment of the five-year plan at all levels in the form of a cumulative total from the beginning of the five-year plan and fulfillment of the annual plan -- a cumulative total since the beginning of the year. Such a measure will be of great importance for increasing interest and raising responsibility for fulfillment of the tasks for each year of the five-year plan and for the five-year plan as a whole. At the same time, it will make it possible to eliminate shortcomings in planning from the base achieved and it will remove those obstacles which restrain the initiative of enterprises in searching for and utilizing additional reserves for ahead-of-schedule fulfillment of the plan.

A great amount of attention is being given to the norm method for planning. In particular, this means that the plans must be composed based upon a system of scientifically sound technical-economic norms and normatives , by types of work, expenses for labor, raw materials, materials and so forth.

In recent years the gross cost and natural indicators have come under sharp criticism. Gross output makes it possible to compare the output of various branches, the dynamics of the comparison and also to determine other indicators on this basis. But at the same time it is interested in the production of materials-intensive products and leads to duplication during an evaluation for the national economy as a whole.

In order to eliminate the negative aspects of the gross cost indicators for output volume, the need for raising the role played by net (normative) production was recognized.

Among the indicators specified, a special role is played by the normative planning of wages. The independence of enterprises in planning the wage fund is being expanded based upon wage norms per ruble of output, approved in the five-year plan. The new system will promote an improvement in the use of labor productivity reserves and an economy in the number of personnel employed. This is especially important today in light of the tense labor balance.

A basically new approach is being employed in the planning of finances. It involves the appearance of a new indicator -- norm for distribution of profits by years of the five-year plan -- in the structure of approved indicators for the plan for economic and social development.

The profit reflects completely the efficiency of use of all resources allocated. Thus the establishment of a normative relationship for all resources allocated for expanded reproduction, material incentives and other needs serves to guarantee that the additional requirements of efficiently operating collectives will be met during the course of fulfillment of the five-year plan. A lag in carrying out the tasks aimed at raising production efficiency will tend to limit the possibilities for satisfying internal requirements.

The problem of capital investments is being resolved in a basically different manner. Today they are being allocated for planned growth in output and this assumes planning for active production and new construction as a unified whole.

Commencing with the Eleventh Five-Year Plan, approval has been given for a stable five-year plan for capital construction, with a breakdown by years, a plan that is balanced completely in terms of construction organization resources and capabilities.

Over the next few years, the implementation of the measures planned will become the principal trend in the activities of all of the planning, economic and financial organs, both in the center and in the various areas.

The successful solving of the planning problems in industry and construction, as discussed above, will undoubtedly exert a positive effect on the carrying out of further improvements in agricultural planning.

As is well known, great changes have taken place in agricultural production throughout the country over the past few years. From a quality standpoint, we have entered a new stage in the development of such production.

Having developed Lenin's agrarian policies in a creative manner, our party is consistently and purposefully carrying out work aimed at transforming this branch into a highly developed sector of the socialist economy. The scope of this work increased greatly following the March (1965) Plenum of the CC CPSU, which thoroughly and comprehensively revealed and substantiated the role played by agriculture in communist construction and laid the foundation for the agrarian policies of the CPSU during this modern stage.

Throughout the last three five-year plans alone, approximately 400 billion rubles were allocated for agricultural development. Since the March (1965) Plenum of the CC CPSU, the fixed capital of kolkhozes and sovkhozes has increased by a factor of

2.8 and the power engineering capabilities -- by a factor of 2.6. Large scale measures have been carried out in connection with land reclamation and the use of chemical processes in agriculture. Considerable improvements have been realized in recent years in the professional and cultural-technical level of agricultural personnel. At the present time, there are approximately 2 million specialists working at kolkhozes, sovkhozes and other agricultural enterprises, an average of 35 individuals per farm. The overall number of machine operators exceeds 4.5 million individuals. The army of land reclamation specialists, rural builders and workers attached to enterprises and organizations of sel'khoztekhnika numbers more than 6.2 million.

Great quantitative and qualitative changes have taken place in agriculture as a result of the practical implementation of the party's modern agrarian policies. This branch is confidently advancing along the path of intensification and is developing in a more stable and dynamic manner. It is sufficient to state that during the years of the Tenth Five-Year plan gross agricultural output increased by 37 percent above the average annual volumes during the Seventh Five-Year Plan. During this period, the country's per capita production of agricultural products increased by 25 percent, against a population growth of 28 million individuals. This raised considerably the per capita consumption of products and it improved considerably the nutritional structure for Soviet people. However, difficulties are still occurring in the area of food supply. This underscores the need for higher rates for intensifying the production of farming and animal husbandry products.

The principal method for solving the established task consists of further strengthening the logistical base for agriculture. Compared to the Tenth Five-Year Plan, considerably more resources have been made available for agricultural development during the Eleventh Five-Year Plan. This is making it possible, on a broad scale, to carry out measures aimed at raising agricultural production.

It bears mentioning that full use is still not being made of the productive-economic potential created in agriculture or of the great creative potential embodied in the increasing number of skilled kolkhoz and sovkhoz specialists, for the purpose of further raising agricultural production and increasing its efficiency.

One reason for this is failure to observe the established principles of planning, principles which call for the combining of centralized management with the economic independence of enterprises, the development of initiative and increased responsibility and interest by the leaders, specialists, workers and kolkhoz members in the final results of their labor. For example, in a number of oblasts and republics, the farms were notified from above, in violation of the established system, regarding the sowing areas, the productivity of the agricultural crops, the number of cattle, their productivity and other indicators not called for in the state plan for economic and social development in the USSR.

When approving the procurement tasks for agricultural products, the local organs do not at the same time provide the farms with the delivery plans for logistical resources required for ensuring an appropriate increase in output production. Quite often, during agricultural planning, the production trends of the farms and their specializations are not fully taken into account. Such an approach has restrained production growth and led to an increase in production costs. Mention should also be made of the existing multiplicity of procurement plans, instead of just one procurement plan for five years, and also the practice of frequent and unsound changes in the plans.

A mandatory component for raising the efficiency of agricultural production, as noted during the 26th party congress, is that of further improving the economic conditions of the kolkhozes and sovkhozes and the moral and material incentives for the rural workers. This is precisely the goal of the decree of the CC CPSU and the USSR Council of Ministers entitled "Improvements in the Planning and Economic Stimulation of Production and in the Procurements of Agricultural Products." As a component part of the party's measures aimed at improving the managerial mechanism in our country, this decree is bringing about important changes in the system of planning and stimulation and it is motivating the kolkhozes and sovkhozes towards achieving high final results.

The placing of a limit on the number of indicators established for farms on a centralized basis was recognized as feasible. And first of all -- to reject a multiplicity of plans. As is known, in recent years the various areas were supplied from above with firm plans, overall volumes and additional tasks for the procurement of agricultural products. Naturally, a degree of uncertainty has arisen among the kolkhoz and sovkhoz leaders and specialists and they are evidencing a desire to obtain lower and less tense tasks. Such a system has paralyzed initiative in the various areas with regard to solving the many problems associated with the rational management of the economy on a strictly planned basis.

In the decree as adopted, the plans call for the establishment, commencing in 1981, of unified state procurement plans for field and farm products, for a period of 5 years with a breakdown by years, for republics, krays, oblasts, rayons, kolkhozes and goskhozes. This will promote the adoption of optimum plans, raise the initiative of leaders and make it possible to utilize internal reserves in a more active manner.

Measures were adopted for improving the balance between the planned procurement and production volumes on the one hand and available and allocated resources on the other. Special attention is being given to ensuring that, simultaneous with the procurement tasks, the kolkhozes and sovkhozes are being provided with the delivery volumes for tractors, motor vehicles, fertilizers, herbicides, fuel and other required resources and also the limits for capital investments.

An instruction on the development and timely examination of the system of norms and normatives and making greater use of them for planning agricultural development at all levels is directed towards placing a restriction on subjective solutions and raising the scientific validity of plans.

The CC CPSU and the USSR Council of Ministers recognize as incorrect the practice of imposing tasks on the farms which are not called for in the state plans for the economic development of the USSR and the union republics. It has been established that the volumes of output production, the size and structure of the areas under crops, the number of livestock, cropping power and other production indicators, similar to the production technology and organization, are determined by the farm managers and specialists taking local conditions into account and based upon leading experience and the recommendations of scientific-research institutes. In the process, one principal requirement must be followed in a very strict manner -- unconditional fulfillment of the established plans for state procurements of agricultural products and the satisfaction of internal needs.

All of the above will promote increased responsibility by the personnel for the efficient use of agricultural resources and make it possible to concentrate the attention of the specialists on such problems as the culture of farming, animal husbandry, the introduction of scientific and engineering achievements into operations and leading experience.

The level of planning at kolkhozes and sovkhozes is greatly dependent upon the workers attached to the agricultural organs. The decision was made to increase their responsibility for the development and carrying out of the planning tasks. The bonuses issued to workers attached to agricultural organs will be increased by 30 percent if all farms directly subordinate to these organs succeed in coping with their planned indicators for gross output volume. If the number of such farms is less than 80 percent, the bonuses will be reduced by 30 percent.

Considerable importance is attached to the social orientation of the plans. The need is recognized for having composite sections for all-round social development of the rural areas available at all planning levels. This will include measures for improving working conditions, raising the skills and professional expertise of the workers and their general educational level and improving housing and cultural-domestic conditions.

During the new five-year plan, a more active campaign will be waged against output losses and also against those factors which tend to lower output quality. The system of planning and material incentives is also oriented towards improving the preservation of everything produced out on the fields and farms. The procurement ministries and departments are obligated to accelerate the conversion over to accepting the agricultural products at the production sites, using their own transport equipment for transporting the products and improving the system for accepting and paying for highly perishable fruit and vegetables. In the decree, special emphasis is placed upon having the procurement specialists organize the procurement work and ensure continuous acceptance of all products presented by the farms.

A number of kolkhozes, sovkhozes and other agricultural enterprises and associations have their own storehouses. In order to achieve more complete use of these facilities, improved storage and direct deliveries of potatoes, vegetables and fruit to the trade enterprises and organizations, it is considered advisable for the products stored on the farms to be counted towards fulfillment of the plan for sales to the state, for the year in which they were actually sold.

In recent years the kolkhozes and sovkhozes have expanded considerably their processing of various products from agricultural raw materials. The plans call for improvements in the planning conditions, in logistical support for production and in the sale of these products and this will undoubtedly bring about a reduction in losses and an improvement in product quality.

The CC CPSU and the USSR Council of Ministers have recognized the need for carrying out a series of measures aimed at improving the economic stimulation of farms and kolkhoz and sovkhoz workers in increasing the production and sale of agricultural products to the state and raising the efficiency of production and the quality of the work being performed.

The bonuses paid out earlier to the farms for above-plan sales to the state of grain, sugar beets, raw cotton, livestock, poultry, milk and other types of products, commencing in 1981, have been included in the unified procurement prices used for payments for all products, with no division being made into a plan or above-plan portion. In the process, the councils of ministers of union republics can, at their own discretion, use more than one half of the total amount of bonuses for inclusion in the procurement prices for the appropriate types of products. This will make it possible to level off the profitability for the individual types of products.

Thus, during the course of retaining the earnings amount per unit of output prevailing in the union republics, considerable improvements were realized in the conditions for paying for the products. Whereas in the past bonuses were paid out only to those farms which delivered agricultural products over and above established firm plans, at the end of the year and following the fulfillment of tasks, today all farms receive a bonus included in the price commencing with the very first quintal of products delivered to the state. This is especially important for kolkhoz and sovkhoz economies during years marked by unfavorable weather conditions. As a rule, production expenses increase during such years and the farms will have raised earnings per unit of product compared to previous conditions.

New and common procurement prices have been established both for the kolkhozes and sovkhozes on the one hand and the private plots of citizens on the other They are creating interest in the production of high quality agricultural products.

In order to stimulate a further increase in the production and sale of agricultural products, a bonus was established, commencing in 1981, amounting to 50 percent of the procurement prices for the sale of products to the state over and above the average level achieved during the Tenth Five-Year Plan. This year alone, the kolkhozes and sovkhozes will receive under the new system of incentives, roughly 4 billion rubles in the form of bonuses from the sale of products to the state. Such bonuses added on to the prices, for having exceeded the achieved level of procurements, will promote improvements in the financial-economic status of farms and in their economic interest in constantly increasing the volumes for the production and sale of products to the state. This is especially important for stimulating those backward farms possessing relatively great unused reserves for increasing production operations.

During the July (1978) Plenum of the CC CPSU, Comrade L.I. Brezhnev stated: "Thought should be given to strengthening the link between material incentives for kolkhoz and sovkhoz workers and the results of their labor and to the efficient use of production capital and material resources. Importance is also attached to improving the system of issuing bonuses to farm managers and specialists."

The decree calls for a number of measures aimed at raising the stimulating role played by bonuses and wages in increasing production and improving the quality of agricultural products and also raising production efficiency. Up until this year, the leading workers, specialists and sovkhoz workers were awarded bonuses mainly for having over-fulfilled the planned indicators. Quite understandably, this raised the desire to avoid tense plans and it failed to arouse sufficient interest in increasing the production and sale of products to the state. At the present time, the leaders of sovkhozes and other state agricultural enterprises are authorized to issue bonuses to workers, with the consent of the higher organs, for indicators that were developed taking into account the specific conditions on the farms, for the purpose of raising labor productivity, lowering production costs, increasing production and improving output quality compared to previous years.

Under the new conditions, the leading workers and specialists will be awarded bonuses for the increased production and sale of products to the state, over and above the average level achieved during the past 5 years, and also for an increase in profit or a reduction in losses. Workers who contribute constantly to increases in output production and to improvements in the economic indicators will be awarded bonuses for holding down two jobs, for uninterrupted work service and for high skills.

At the same time, the carrying out of a complex of measures aimed at improving planning and the stimulation of agricultural production requires radical improvements in all planning work both in the center and out in the various areas. Further improvements must be carried out throughout the entire economic mechanism in the agroindustrial complex. Beyond any doubt, this is being done. The necessary changes have been introduced, improvements have been carried out in the methodological instructions for developing the plans for the economic and social development of the USSR and the union republics, farms and associations and refinements are being introduced into a number of normative documents established to control the interrelationships of kolkhozes and sovkhozes with procurement organizations and also sovkhoz wages.

However, USSR Gosplan, the councils of ministers of union republics, the USSR Ministry of Agriculture, other ministries and departments, local party, soviet and agricultural organs, workers attached to planning organs and farm managers and specialists must, based upon the decree of the CC CPSU and the USSR Council of Ministers, improve considerably the practice of planning for agriculture and its related branches and at all levels of control for this vitally important complex of our country's economy. A great amount of work must be carried out in order to develop an all-round food program, one which will bring together those problems concerned with the planning, financing and complex development of those branches associated with the production of food products.

In USSR Gosplan and the gosplans for the union republics, jointly with the agricultural organs, work is nearing completion on the development of a draft five-year plan for agricultural development during the Eleventh Five-Year Plan. Jointly with the union republics, a great amount of work is being carried out in connection with the formation of the food program which, as mentioned by Comrade L.I. Brezhnev during celebrations held in Georgia, must "within a short period of time, provide reliable support for the people in the form of food products." A maximum amount of attention was given to improving the use of land, production capital, material and labor resources and the natural and economic factors associated with agricultural production and to mutual coordination of all links in the agroindustrial complex.

This is a complicated production-economic system consisting of a number of national economic branches. Three chief spheres of the APK [agroindustrial complex] can be singled out.

The first is represented by those branches and sub-branches of industry which provide agriculture and the light, food, meat and dairy industries and the procurement system with the means of production. This includes tractor and agricultural machine building, machine building for animal husbandry and feed production and for the light and food industry, the production of specialized motor transport equipment and land reclamation equipment, the production of mineral fertilizers and chemical means for protecting plants, the mixed feed and microbiological industry, production-technical services and logistical support for agriculture.

The development of the mentioned branches determines the scientific-technical level for agricultural production and the rates for its technical re-equipping. When we consider that the output of these branches constitutes more than 60 percent of the total expenses for the production of agricultural products, then one can readily understand the decisive role played by this sphere of the APK in its final results.

The second sphere is that of direct agricultural production. A large portion of its output can be neither reproduced nor replaced by other products. During the process of forming the APK, substantial changes take place in the structure and character of agriculture: the flow of materials into industry increases, a reduction takes place in the amount and proportion of products going directly to private consumption. It is gradually transformed into a raw materials branch and the economic results of its activity are determined to a greater degree by the conditions of interbranch exchange.

The third sphere -- the totality of branches and production efforts engaged in the procurement, transporting, storage and processing of agricultural products. This includes the food, meat and dairy and milling-groats industries, light industry enterprises engaged in the primary processing of agricultural raw materials, the procurement system and the elevator-storehouse economy. The role of this sphere is predicated upon the fact that it is here that the principal portion of the final product of the APK is created and approximately three fourths of the meat and milk, practically all of the grain and so forth are processed.

Despite the fact that substantial increases have taken place recently in the production capabilities of the processing industry, the void between them and the production volume for agricultural raw materials is decreasing slowly. As a result, considerable losses are taking place. An urgent need exists for improving the storage system for the products and decreasing the amount of deterioration in product quality that takes place during movement to the consumer.

Work is presently being carried out throughout the country in connection with organizing planning for the agroindustrial complex. It makes sense to single it out as an independent object of planning, so as to ensure coordinated and proportional development for all of its branches. An administration for planning the country's agroindustrial complex has been organized in USSR Gosplan. The plans call for similar subunits to be attached to the gosplans for the union republics. It is considered advisable during this present stage to accept a more narrow interpretation of an APK and for planning purposes to form a complex consisting of the following: agriculture, meat and dairy industry, food industry, system of procurements, milling-groats and mixed feed industry.

These branches do not exhaust the overall diversity of inter-branch contacts of agriculture as a central link of the complex. It is closely associated with those sub-branches of light industry that participate in the primary processing of agricultural raw materials, with the sales system for food goods through state and cooperative trade and with public catering.

It is considered advisable in the near future to form a food complex for the country within the agroindustrial complex. Towards this end, it has been proposed that the APK include the fishing industry, forestry and other branches which serve to supplement agriculture in the creation of food resources.

Those branches of industry which produce the means of production for agriculture, the food and mixed feed industries and a number of other branches of industry should be included as indispensable participants in the structure of the agroindustrial complex, in the methodological works and economic literature. During a given stage, these branches of the first sphere are not included organizationally in the APK. They are included in the structure of other large national economic complexes which are related to them by virtue of the production technology and organization. Thus, in accordance with the method adopted by USSR Gosplan for distributing branches among newly organized administrations, automotive and agricultural machine building, machine building for animal husbandry and feed production, in addition to other machine building branches, are included in the structure for the Administration for the Complex Planning of Machine Building. The production of mineral fertilizers and other chemical agents for agriculture is included in the Administration for the Complex Planning of the Raw Materials Branches of Industry and Construction Materials.

Under conditions involving the creation of large national economic complexes as objects for planning, an increase takes place in the role played by the upper level of control in establishing correct mutual relationships and proportions in development among the agroindustrial and all other large complexes. An increase in the level of planning work in each national economic complex will promote a further increase in production, improved output quality and successful solutions for the large-scale economic and social tasks advanced by the party during the new five-year period.

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AGRO-ECONOMICS AND ORGANIZATION

MEASURES FOR CONSERVING PETROLEUM PRODUCTS IN BELORUSSIAN AGRICULTURE

Minsk SEL'SKAYA GAZETA in Russian 18 Dec 81 pp 1, 3

/Article: "In the Belorussian SSR Council of Ministers"/

> /Text/ The Belorussian SSR Council of Ministers adopted a decree on serious shortcomings in the utilization of petroleum products in the republic's agriculture.

The decree notes that the ministries of agriculture and of land reclamation and water resources, the Belorussian SSR State Committee for Supply of Production Equipment for Agriculture and their local bodies did not take all the necessary measures to resolutely stop the deficiencies in the utilization of petroleum products in agriculture and did not ensure strict control over an unconditional fulfillment of the assignments established by the decree dated 3 September 1979 of the Belorussian SSR Council of Ministers and by the decree dated 3 July 1981 of the Central Committee of the Communist Party of Belorussia and the Belorussian SSR Council of Ministers.

In many enterprises, organizations, associations, kolkhozes and sovkhozes subordinate to them, in practice, measures to ensure an economical expenditure of fuels and lubricants are not implemented and the proper fight against cases of mismanagement and waste in their utilization is not waged. The recording and writing off of petroleum products have not be organized properly and there are cases of padding of the volumes of transported goods and of the run of motor vehicles, which creates an imaginary saving of fuel and the conditions for its squandering and misappropriation. The release of a large number of motor vehicles with faulty speedometers on the line also contributes to this. The writing off of the deficient and overspent amount of gasoline and diesel fuel from production costs without a careful examination of the causes and without making the guilty financially responsible for this is tolerated. Measures of moral and financial incentives for the saving of fuels and lubricants are applied inefficiently. The managers and chief engineers of many farms keep aloof from the most important work on the saving of petroleum products.

An especially unsatisfactory situation with the utilization of fuels and lubricants was revealed on kolkhozes and sovkhozes and at other enterprises and organizations of agriculture in Gomel'skaya and Mogilevskaya Oblasts, as well as in Kirovskiy, Lepel'skiy, Mostovskiy, Myadel'skiy, Smolevichskiy and Khotimskiy Rayons.

The ministries of agriculture and of land reclamation and water resources, the Belorussian SSR State Committee for Supply of Production Equipment for Agriculture and the Belorussian Administration of Interkolkhoz Construction do not advise all the subordinate farms of the norms of expenditure of gasoline and diesel fuel for motor vehicle freight transport and tractor work established in annual plans, as a result of which these norms are overstated without substantiation in the localities. Both last and this year on the kolkhozes and sovkhozes and at the other enterprises and organizations of these ministries, of the Belorussian SSR State Committee for Supply of Production Equipment for Agriculture and of the Belorussian Administration of Interkolkhoz Construction gasoline was greatly overspent in freight transport as compared to the need according to the established norms.

The faulty practice of allocation by kolkhozes, sovkhozes and rayon associations of the Belorussian SSR State Committee for Supply of Equipment for Agriculture and of the Belorussian Production Association for Agrochemical Services to Agriculture of petroleum products from the stocks of agriculture to various nonagricultural consumers has become widespread.

The fulfillment of the assignments for the construction of petroleum warehouses on the republic's kolkhozes and sovkhozes was not ensured in 1980. In 9 months of this year only 34 petroleum warehouses, or 16 percent of the assignment, were put into operation, two petroleum warehouses were built in Brestskaya Oblast and two, in Gomel'skaya Oblast, while the assignment called for 32 and 41 respectively, and not a single warehouse was built in Mogilevskaya Oblast. The rayon production associations of the Belorussian State Committee for Supply of Production Equipment for Agriculture do not always promptly carry out the full volume of work on the technical servicing of petroleum warehouses of the kolkhozes, sovkhozes and organizations of the Belorussian SSR Ministry of Land Reclamation and Water Resources. As a result, on a number of farms the existing capacities and equipment operate with deviations from the established requirements, which leads to great losses of gasoline and diesel fuel.

The Belorussian SSR Council of Ministers made it incumbent upon the Belorussian SSR ministries of agriculture, of fruit and vegetable industry, of land reclamation and water resources and of food industry, the Belorussian SSR State Committee for Supply of Production Equipment for Agriculture, the Belorussian Administration of Interkolkhoz Construction, the Belorussian SSR State Committee for Supply of Petroleum Products and oblast and rayon executive committees:

to immediately examine the state of affairs with the utilization of petroleum products in agriculture, to eliminate the serious shortcomings existing in this matter and to ensure an unconditional fulfillment of the assignments and requirements envisaged by the decree dated 3 September 1979 of the Belorussian SSR Council of Ministers and by the decrees dated 3 July 1981 and 18 September 1981 of the Central Committee of the Communist Party of Belorussia and of the Belorussian Council of Ministers;

to discuss during the first quarter of 1982 in all labor collectives measures for an economical utilization of petroleum products; to place their fulfillment under unabated control; to consider fuel saving one of the most important jobs of every machine operator, truck driver, manager and engineer; to more widely apply the award of bonuses for the saving of petroleum products and the measures of financial responsibility for their overexpenditure envisaged by the decree dated 28 April 1967 of the USSR Council of Ministers;

to advise all the subordinate farms of the norms of fuel expenditure established in plans and of the assignments for fuel saving and to ensure the expenditure of petroleum products in accordance with these norms;

to intensify the control over the utilization of fuels and lubricants in agriculture and to make the individuals guilty of their uneconomical expenditure and squandering strictly responsible for this; not to leave a single case of padding of the volumes of freight transport and of the run of motor vehicles without a proper reaction;

to implement specific measures to ensure an appropriate technical state of trucks and their efficient utilization in freight transport; to strive for a rise in the coefficients of utilization of the pool of run and freight capacity of motor vehicles up to the level of these indicators at advanced farms and organizations; to avoid a release of motor vehicles on the line with faulty and unsealed speedometers;

to ensure an unconditional fulfillment of the assignments for the construction and reconstruction of petroleum warehouses on kolkhozes and sovkhozes;

to organize everywhere socialist competition among machine operators and truck drivers for the saving of fuels and lubricants.

Comrades Sen'ko, Pozharskiy, Pavlyuchuk, Yakushev and Kichkaylo are warned that they are personally responsible for ensuring an unconditional fulfillment of the party and government decisions on an economical and efficient utilization of petroleum products.

The Belorussian SSR Council of Ministers made it incumbent upon the Belorussian SSR State Committee for Supply of Production Equipment for Agriculture:

with the participation of the Belorussian Republic Administration of the USSR State Committee for Standards to examine the problem of organization of the repair of motor vehicle speedometers and to adopt the necessary decision;

together with the Belorussian SSR ministries of agriculture, of fruit and vegetable industry and of land reclamation and water resources to ensure in the shortest period an appropriate technical state of the equipment of all petroleum warehouses on kolkhozes and sovkhozes and at other subordinate enterprises and organizations, as well as a prompt and quality performance of the technical servicing of this equipment.

The Belorussian SSR ministries of agriculture, of fruit and vegetable industry and of land reclamation and water resources, the Belorussian SSR State Committee for Supply of Production Equipment for Agriculture and Glavpoles'yevodstroy must examine at board meetings the problem of measures to ensure an efficient utilization of petroleum products at subordinate enterprises and organizations, issue the appropriate orders and establish the strictest control over their execution.

Ministries, departments, oblast and rayon executive committees, enterprises and organizations are forbidden to transfer petroleum products from the stocks of agriculture for purposes not connected with agricultural production.

The Belorussian SSR ministries of domestic services for the public, of housing and municipal facilities, of education, of culture, of local industry and of construction and operation of motor roads, the Belorussian SSR Cooperative Union and other ministries and departments together with the Belorussian SSR State Planning Committee must take the necessary measures to improve the substantiation of the need of all subordinate organizations for fuels and lubricants, to obtain stocks for them in accordance with the established procedure and to efficiently expend petroleum products.

The Belorussian SSR ministries of agriculture, of fruit and vegetable industry and of land reclamation and water resources, the Belorussian SSR State Committee for Supply of Production Equipment for Agriculture, the Belorussian Administration of Interkolkhoz Construction and oblast executive committees must report to the Belorussian SSR Council of Ministers on the work done to improve the utilization of petroleum products in agriculture as of 1 July 1982 and 1 January 1983.

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TILLING AND CROPPING TECHNOLOGY

UDC 631.816

FERTILIZER DOSES FOR WEST SIBERIA, NORTHERN TRANS-URALS DETERMINED

Sverdlovsk URAL'SKIYE NIVY in Russian No 10, Oct 81 pp 24-26

/Article by A. Kochergin, professor, doctor of agricultural sciences, Siberian Scientific Research Institute of Agriculture, and A. Kol'tsov, candidate of agricultural sciences, Scientific Research Institute of Agriculture of the Northern Trans-Urals: "Fertilizer Doses for Programmed Yield"/

/Text/ At present scientific research institutes of agriculture and agricultural experimental stations study the problem of harvest programming. A great deal in this direction was done by N. S. Shatilov and other researchers in our country.

Harvest programming is considered a process consisting of two stages: 1) calculation of the possible harvest with due regard for the biological properties of crops and varieties and data on the natural resources of a region or a specific farm, such as soil fertility, influx of solar radiation (FAR) and water supply; 2) use of a set of measures ensuring a yield close to the calculated level.

Prof. A. A. Nichiporovich, a well-known specialist in plant physiology, believes that a grain yield of 80 to 100 quintals per hectare is substantiated biologically. According to the FAR value Siberians of the chernozem zone can also obtain 100 quintals of grain per hectare and according to the moisture supply, 40 to 50 quintals per hectare on fallow and 25 to 30 quintals per hectare after nonfallow predecessors.

The formula of calculation of fertilizer doses for the planned yield proposed in the 1940's by the All-Union Scientific Research Institute of Fertilizers and Soil Science and the All-Union Scientific Research Institute of Standardization has been used up till now. The formula of N. S. Shatilov and M. K. Kayumov, which, in principle, does not differ from the above-mentioned formula, is also used now. The fact that only the nutrients of the soil arable layer available to plants are taken into account is the main shortcoming of all balance methods. However, in spring wheat 85 to 90 percent of the plant root system is located in the upper ½-meter soil layer. Therefore, the calculation of the forms of nitrogen, phosphorus and potassium from arable and subsurface layers available to plants is more substantiated. We must orient ourselves to normal and lower fertilizer doses and develop and introduce methods of obtaining a high effect from small and average doses through their correct establishment, a better combination of types of fertilizers and their better placement in soil. "Spravochnik po Programmirovaniyu Urozhayev"

/Handbook on Harvest Programming/ by M. K. Kayumov is now the main manual for the establishment of fertilizer doses for the programmed yield. It recommends the determination of the need of plants for nitrogen fertilizers according to the content in the arable soil layer of readily hydrolyzable nitrogen determined by the method of Tyurin and Konovalova. It is suggested that 20 to 25 percent of the content of this nitrogen fraction be taken into account.

The long-term check made at the Siberian Scientific Research Institute of Agriculture has shown the unsuitability of this method for diagnosing the need of plants for nitrogen fertilizers on chernozem and gray forest soil in Siberia and the Trans-Urals, because the relationship between the content of readily hydrolyzable nitrogen in soil and the effectiveness of nitrogen fertilizers is not taken into account. In this method nitrogen of absorbed ammonia, nitrates, nitrites and a readily hydrolyzable organic substance is extracted from the arable layer. It does not take into account the mobile forms of nitrogen of subsurface soil layers available to plants.

In 1958 Zhurbitskiy proposed a simpler method of calculating fertilizer doses for the planned increase in the yield. Zhurbitskiy's method is the development of Denis'yevskiy's method.

It is well known that a yield without fertilizers reflects soil fertility. Therefore, there is no need to determine the coefficients of utilization of P and K by plants from soil. It remains to determine only the coefficient of utilization of nitrogen, phosphorus and potassium from fertilizers. The complexity in the establishment of the initial yield is the weak spot of this method. During years with a lower yield doses can prove to be overstated and during years with an increased yield, understated. We believe that for a correct calculation of the doses of nitrogen fertilizers as a whole and of the doses for an increase in the harvest it is necessary to annually take into account the content of nitrate nitrogen in soil and to correct the calculated doses accordingly.

After rainy years the content of nitrates in soil after nonfallow predecessors is low and after dry years, high. Therefore, average indicators are unsuitable. It is necessary to have coefficients of utilization of fertilizer nutrients by plants. They are different for different types of soil and on the same soil are dissimilar for different agrotechnical and meteorological conditions. The coefficients also depend on the doses and combinations of fertilizers. For phosphorus fertilizers they also greatly differ depending on the method of placement of fertilizers in soil (local and local-screen methods, the row method with seeds and the broadcast method with placement with a plow or cultivator) and can range from 5 to 20 percent and higher. This should be taken into account when calculating doses.

Phosphorus doses should be specified in accordance with the planned methods of its application and placement in soil (broadcast, local, local-band and row during sowing) and with due regard for the aftereffect of phosphorus fertilizers applied during previous years.

On the basis of long-term research we have developed a new method of determining the need of plants for nitrogen fertilizers and are introducing it into practice. Its essence lies in the following. It is recommended that the need of agricultural plants for nitrogen fertilizers be determined according to the content of nitrate nitrogen in the 0-50 cm soil layer before crop sowing with due regard for current nitrification. This method was checked in West Siberia and the Trans-Urals. It confirmed the dependence of the effectiveness of nitrogen fertilizers on the content of $N\text{-}NO_3$ in late fall or spring before sowing in the 0-40 cm soil layer. The coefficient of correlation between the content of nitrate nitrogen and the effectiveness of nitrogen fertilizers ranged from 0.67 to 0.96, which attests to a very close relationship.

Under the conditions of the Northern Trans-Urals we consider it possible and advisable to determine nitrate nitrogen in the meter soil layer, although for a simplified calculation of the doses of nitrogen fertilizers for the planned yield of grain crops we permit the determination of nitrates in the 0-50 cm layer as well. Nevertheless, it is necessary to take the nitrates of the second ½ meter into account and consideration.

For the determination of the doses of nitrogen fertilizers for the planned yield we propose taking into account not only the initial content of nitrates before crop sowing, but also the nitrates that can be formed in soil through current nitrification (N_{TH}). For spring grain crops these are nitrates that can be formed in soil during the May-July period. For row crops it is necessary to also take into account nitrates formed in August and for winter grain crops, in August-September and April-July.

The amount of TH is established experimentally for the basic types and varieties of soil and various agrochemical and meteorological conditions. The average amount of TH is taken into account. It is best and most accurate to determine this indicator on plots with a very low or zero content of nitrates before sowing according to the removal of nitrogen by wheat plants with due regard for the content of residual nitrogen in soil during the period when plants are taken for an analysis. TH will be equal to the removal of nitrogen by a plant with a correction for the expenditure of nitrogen for the root system and stubble remains plus residual nitrates during the crop harvesting period. The amount of nitrate nitrogen accumulated in fallow can be taken as a basis.

The determination of the scale of denitrification will make it possible to specify this amount. Denitrification and immobilization reduce the true amount of TH. The washing out of nitrates affects its reduction during rainy years.

The coefficient of utilization of the nitrate nitrogen of soil by plants should be determined during years normal in terms of moisture and against various agricultural backgrounds. During drought years, owing to low harvests, it can be greatly understated. It is lower on areas sown after fallow than on areas sown after fall plowing.

The 20-40 percent coefficients of utilization of fertilizer nitrogen by plants cited by some authors are the consequence of very low harvests, especially in the steppe and the southern forest steppe, when plants are provided with nitrogen basically from soil nitrates. This should be kept in mind during calculations.

For a calculation of nitrogen doses for the planned harvest we offer the following formula:

$$Д=\frac{A--(N_{исх}+N_{тн})п}{C}$$

where	$Д$	is the dose of nitrogen for the planned harvest (kg per hectare of active substance);
	A	is the total need for nitrogen for the planned harvest with due regard for the output of byproducts and the root system of plants;
	$N_{исх}$	is the content of $N\text{-}NO_3$ before sowing in 0-50 cm soil (kg per hectare);
	$N_{тн}$	is $N\text{-}NO_3$ formed during the period of plant vegetation (kg per hectare), that is, for spring grain crops, May-July and for row crops, May-August; for winter grain crops, August-September and April-July;
	$п$	is the coefficient of utilization by plants of $N\text{-}NO_3$ from the 0-50 cm soil layer;
	C	is the coefficient of utilization of fertilizer nitrogen by plants.

It is necessary to further specify the value of C as applied to soil and agrotechnical conditions.

As a specification of the amount of A it is necessary to keep in mind that 1 ton of spring wheat grain with the appropriate amount of output of byproducts (straw and chaff accounts for 25 mg of nitrogen and stubble and root remains, 8 mg or one-third.

$N_{исх}$ is determined before sowing in the 0-50 cm layer and in the 0-25 and 25-50 cm layers;

N_{TH}, according to the content of nitrogen in the entire plant biomass, that is, in the ground part and in the stubble and root remains of the 0-50 cm soil layer.

For the purpose of determining TH it is necessary to set up a special experiment on a plot with a minimal or zero content of nitrate nitrogen before sowing. For the calculation it is necessary to take average amounts, that is, amounts characteristic of various types of meteorological conditions of vegetation.

The samples of plants for analysis are taken at the blossoming phase and the beginning of grain formation, because at this time plants contain the largest amount of the required nitrogen. During the period when the samples of plants are taken the content of $N\text{-}NO_3$ in the 0-50 cm soil layer is determined. The root system should also be taken into account at the depth of 0-50 cm.

The amount of the possible accumulation of nitrates in soil during the period of plant vegetation can be judged by the amount of nitrate nitrogen accumulated in soil during the period of field fallowing. It will slightly differ from the amount of current nitrification under plants owing to the fact that the plants themselves affect the process of nitrification with their root secretions, root microflora and consumption of nitrates. A different heat and moisture regime is formed under plants, which also greatly affects nitrification.

During normal years and years with an increased moisture the coefficients of utilization by plants of nitrate nitrogen from soil for the 0-50 cm layer approximate 60-80 percent and even 100 percent and from mineral fertilizers, 60-80 percent.

The coefficients of utilization by plants of phosphorus from fertilizers can be increased through a localized placement of fertilizers in soil (localized placement before and after sowing, localized-band placement, side and deep-seed localized placement and row placement during sowing and with seeds).

We suggest that the doses of phosphorus and potassium fertilizers for the planned yield be calculated according to the content of the forms of these elements both in arable and subsurface soil layers available to plants. For the purpose of simplifying work, for grain crops we can confine ourselves to the study of the availability of these elements in the upper ½-meter soil layer and in the 0-25 and 25-50 cm layers.

It is necessary to study the availability of phosphorus and potassium from arable and subsurface soil layers to plants by the isotope method--32_p and 40_k.

According to the data of the laboratory of agrochemistry, wheat assimilates 80 percent of phosphorus from the arable soil layer and 20 percent, from the subsurface soil layer. These values will be different on different types of soil and on the same soil, different depending on the degree of soil fertilization during preceding years. The higher the fertilization of soil, the lower the significance of phosphates of the subsurface layer in the supply of phosphorus for plants.

For phosphorus we offer the following formula:

$$Д_p = \frac{A - (P_1M_1 + P_2M_2)}{C}$$

where $Д_p$	is the dose of phosphorus for the planned harvest (kg per hectare of active substance);
A	is the total need for phosphorus for the entire plant biomass, ground part and roots (kg per hectare of active substance);
P_1 and P_2	are mobile phosphorus in arable and subsurface soil layers (kg per hectare);
M_1 and M_2	are the coefficients of utilization by plants of mobile phosphorus from arable and subsurface soil layers;
C	is the coefficient of utilization of phosphorus from fertilizers.

Doses of potassium can be calculated according to the same formula.

When establishing A, it should be kept in mind that roots and stubble remains account for 20 percent of phosphorus and 25 percent of potassium of the total amount of these elements absorbed by spring wheat plants. These data need to be specified.

The mobile forms of phosphorus and exchange potassium are determined by methods accepted for these types of soil. A method with the use of ion exchange resins, which models a plant, is promising for phosphorus.

The coefficients of utilization of the phosphorus and potassium of soil by plants can be determined in special experiments with the use of the above-mentioned isotope method--32_p and 40_k.

The root mass is taken into account in the 0-25 and 25-50 cm soil layers.

N, P and K are determined in the ground mass and in roots.

The coefficient of utilization by plants of the nutrients of soil and of fertilizers is determined according to soil and plant analyses in special field experiments with fertilizers according to Z. I. Zhurbitskiy's scheme: 0, NP, NK, PK and $(NPK)_{60}$, by the difference method.

The calculations according to the formulas offered by us point to the advisability of lower doses of fertilizers than this follows from M. K. Kayumov's handbook. For example, in the southern forest steppe and the steppe during a calculation of the doses of nitrogen fertilizers for 40 quintals of spring wheat grain per hectare on leached loamy chernozem with a high supply of nitrogen (70-100 mg of readily hydrolyzable nitrogen per kg and 15-20 mg of nitrate nitrogen per kg) according to our method it was not necessary to apply nitrogen fertilizers, while according to the method recommended by M. K. Kayumov it was necessary to apply 78-108 kg of nitrogen per hectare. In the experiments of the Siberian Scientific Research Institute of Agriculture under these conditions 40-60 quintals per hectare are obtained without the application of nitrogen fertilizers.

When the provision of plants with nitrate nitrogen is low, it is necessary to apply nitrogen fertilizers within 60 kg of active substance per hectare.

The data obtained on the fields of the Scientific Research Institute of Agriculture of the Northern Trans-Urals under the conditions of the northern forest steppe show that the calculation of doses of fertilizers for the planned yield by the cited method makes it possible to obtain the expected yield of spring wheat and corn close to the planned one (see table).

The cited coefficients can be used as a basis at the first stages of harvest programming and during a calculation of the doses for the programmed yield. Subsequently they must be specified as applied to the soil and climatic conditions of zones and regions, the characteristics of crops and the agrotechnology of their cultivation.

In our case the approximate coefficients of utilization of nutrients from soil for spring wheat are as follows: in the zones--steppe, southern forest steppe, northern forest steppe, taiga and subtaiga--in the 0-50 cm layer, $N\text{-}NO_3$--0.6-0.7; 0.8-0.9; 1.0; P_2O_5--0.08 and K_2O--0.07; from manure the first crop utilized N--0.20; P_2O_5--0.15; K_2O--0.2; from mineral fertilizers, N--0.49; P_2O_5--0.18; K_2O--0.5. The content in terms of an air dry substance in percent was as follows: N--2.25; P_2O_5--0.85; K_2O--0.65 (in grain); N--0.6; P_2O_5--0.2; K_2O--1.05 (in straw); N--0.55; P_2O_5--0.25; K_2O--0.95 (in roots). The first two coefficients for $N\text{-}NO_3$ pertain to the steppe and the southern forest steppe and the third, to the northern forest steppe, taiga and subtaiga.

Table. Results of Check of Method of Calculation of Fertilizer Doses for the Planned Yield

Planned yield of spring wheat, quintals per hectare	Actual yield, quintals per hectare			Planned yield of corn, quintals per hectare	Actual yield, quintals per hectare	
	1974	1976	1978		1975	1979
Without fertilizers	29.6	28.4	14.5	Without fertilizers	337	96
20	33.2	27.9	22.4	200	410	204
30	31.6	31.2	31.7	300	442	326
40	39.8	40.1	38.0	400	424	397
50	46.4	51.9	45.9	500	516	539

The provision of grain crop plants with nitrogen, phosphorus and potassium can be determined according to the content of the forms of these elements in the upper ½-meter soil layer, not only in the arable layer, available to plants.

Doses of nitrogen should be established according to the content of nitrate nitrogen in late fall or spring. At the same time, current nitrification is also taken into account. Its amount is established on plots with a minimal or zero content of nitrates in soil before sowing according to the removal of nitrogen by plants with due regard for the remains of $N{-}{-}NO_3$ in the 0-50 cm layer.

The calculated methods of establishing doses of fertilizers for the planned yield or for an increase in the yield should be evaluated according to the increase in the yield per unit of fertilizers, according to the expenditures on fertilizers and their application (per quintal of additional output) and according to profitability. Coincidence of the calculated yield with the actual yield cannot be accepted for an evaluation of the correctness of fertilizer doses if the method of calculation is erroneous.

We recommend taking the coefficients of utilization by plants of the nutrients of fertilizers from scientific institutions of agriculture, which should engage in systematic work on the establishment of coefficients of utilization of soil nutrients and fertilizers by basic agricultural crops as applied to agrotechnical and meteorological conditions and soil cultivation (fertilization).

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TILLING AND CROPPING TECHNOLOGY

CHAIRMAN OF UDMURT AGROCHEMICAL SERVICES INTERVIEWED

Sverdlovsk URAL'SKIYE NIVY in Russian No 10, Oct 81 pp 26-27

/Interview with Aleksandr Ignat'yevich Shuklin, chairman of the Udmurt Republic Association for Agrochemical Services to Agriculture, by V. Sibirev: "With Due Regard for Real Possibilities"; date and place not specified/

> /Text/ As is well known, the newly organized scientific production associations for agrochemical services to agriculture (Soyuzsel'khozkhimiya) have already made their contribution to the development of agricultural production. Our correspondent V. Sibirev met with Aleksandr Ignat'yevich Shuklin, chairman of the Udmurtsel'khozkhimiya Association, and asked him to answer a number of questions. We offer a record of this talk to our readers.

/Question/ Aleksandr Ignat'yevich, please tell us about the structure and material base of the republic's agrochemical services.

/Answer/ The republic's agrochemical services were altered in 1979. Udmurtsel'khozkhimiya--the Udmurt Republic Association for Agrochemical Services to Agriculture--with specialized rayon departments functions as of 1 June. Nine specialized departments were newly organized from the mechanized detachments of rayon associations of the Udmurtskaya ASSR State Committee for Supply of Production Equipment for Agriculture. The Republic Planning and Surveying Station of Chemicalization of Agriculture and the Republic Plant Protection Station form part of the Udmurtsel'khozkhimiya Association.

At present in the system of the Udmurtsel'khozkhimiya Association there are 25 rayon production associations and three additional production associations for agrochemical services for agriculture.

The organization of an efficient utilization of mineral and organic fertilizers, lime materials and chemical plant protection agents is the principal task of rayon production associations. Rayon production associations ensure the delivery of mineral fertilizers, lime materials and feed additives to kolkhozes and sovkhozes, carrying out work under contractual conditions on the procurement and utilization of peat for fertilizers, carting out and application of organic and mineral fertilizers to soil, liming and phosphoriting of soil and chemical plant protection.

For the accomplishment of the set tasks for agrochemical services to agriculture rayon associations have 1,380 motor vehicles, 1,115 tractors, including 338 K-700 and T-150, and more than 340 specialized machines of the ARUP-8 and KSA-3 type. We also have machines for the application of organic and mineral fertilizers and lime materials. More than 3,600 workers, specialists and employees work in all the units of Udmurtsel'khozkhimiya.

The production base of rayon associations is still insufficient. To this day 12 associations of Sel'khozkhimiya are on the territory of the Rayon Agricultural Equipment Association and the construction of projects for production purposes is carried out slowly. At present our enterprises have only five garages for 250 places, one technical service center for 150 standard repairs and eight heated stands for 300 motor vehicles. In 1980 a total of 6.6 million rubles were utilized for construction and warehouses for the storage of 1,500 tons of mineral feed, 1,670 square meters of hard-surface areas, garages and stands for 400 motor vehicles and 6,900 square meters of housing were put into operation.

In 1981 garages for 535 motor vehicles, three technical service centers for 450 standard tractors, warehouses for the storage of 18,000 tons of mineral feed, 14,500 square meters of housing and other projects will be built and put into operation. A total of 10.2 million rubles will be utilized for capital construction.

The enterprises of the Udmurtsel'khozkhimiya system annually receive, process and deliver more than 300,000 tons of mineral fertilizers and 960,000 tons of lime materials and other chemicalization agents to farms. However, there is a shortage of warehouses. The total capacity of warehouse premises at bases for one-time storage of dry mineral fertilizers is only 59,000 tons. For the acceptance and storage of ammonia water there are capacities for 15,400 tons.

/Question/ Of course, difficulties in the formation and development of new forms of agrochemical services are inevitable at first, but it would be interesting for our readers to learn about the practical experience of the Udmurtsel'khozkhimiya Association in 1980.

/Answer/ In 1980 the total volume of mechanized operations amounted to 16.9 million rubles (increased by 1.5 million rubles as compared with 1979).

Despite the extremely unfavorable weather conditions of the past year, throughout the association soil phosphoriting increased by 13 percent (totaled 54,500 hectares) and chemical protection of agricultural plants, by 11,000 hectares (71,000 hectares) and the composting of organic fertilizers rose.

Practice shows that in the rayon associations of Sel'khozkhimiya, where the production base has already been established or its construction is being completed, the situation with respect to the fulfillment of all the plans for mechanized work is much better. For example, Balezinskiy, Mozhginskiy and M.-Purginskiy rayon associations, which have comparatively good production bases, last year fulfilled and overfulfilled the plans for mechanized work, that is, for the delivery of organic fertilizers, by 100-113 percent, application, by 100-134 percent, liming of acid soil, by 103-120 percent, phosphoriting, by 100-176 percent and chemical protection, by 100-136 percent. The sales plan in overall terms was also fulfilled by these associations.

The delivery of organic fertilizers to fields is especially important in the work of the Udmurtsel'khozkhimiya Association, because this type of work requires a great deal of constant effort and the use of a large number of tractors, motor vehicles and loading equipment. In 1980 a total of 4.5 million out of 8.2 million tons of organic fertilizers, or 54 percent, were delivered with the forces of our enterprises and in some rayons much more, that is, in Yukamenskiy Rayon, 81 percent, in Igrinskiy Rayon, 63 percent, in Yak-Bod'inskiy Rayon, 73 percent, in Sharkanskiy Rayon, 86 percent, in Kiyasovskiy Rayon, 76 percent and in Alnashskiy Rayon, 80 percent.

It should be noted that with the establishment of Sel'khozkhimiya enterprises, unfortunately, a tendency toward a reduction in the delivery of organic fertilizers with the forces of kolkhozes and sovkhozes began to be manifested in a number of rayons.

The association fully carries out work on the liming and phosphoriting of acid soil in the republic and the volume of work on the application of organic fertilizers to soil and on their composting is increasing. At the same time, the proportion of work on the application of mineral fertilizers and chemical plant protection carried out by Sel'khozkhimiya enterprises is still small.

As stated above, most Sel'khozkhimiya enterprises provide tangible help in agrochemical services to the republic's kolkhozes and sovkhozes. The availability of a large number of powerful tractors, motor vehicles, loading facilities and other technological equipment in mechanized detachments enables many associations to carry out a large volume of work in a high quality manner and on schedule. However, in Krasnogorskiy, Yak-Bod'inskiy, Debesskiy and a number of other rayons the technological transport designed for the performance of agrochemical work is diverted for other work. Such a diversion creates certain difficulties in the plan fulfillment and does not contribute to an increase in the yield of agricultural crops.

There are also other difficulties in the work of the Sel'khozkhimiya Association. The newly established agrochemical services are not yet provided with personnel and the construction of the production base, housing and cultural-general projects in rayons is not satisfactory. The lack of a good local repair base and the unsatisfactory technical servicing of equipment performed by the State Committee for Supply of Production Equipment for Agriculture lead to a low utilization of the machine and tractor pool and other equipment.

/Question/ What are the prospects of Udmurtsel'khozkhimiya for the next few years?

/Answer/ The development of agrochemical services in the republic during the 11th Five-Year Plan will proceed in two directions. The establishment of rayon production bases and mineral fertilizer bases from the funds allocated to the Sel'khozkhimiya Association is the first. A total of 55 million rubles of capital investments are envisaged for this. The establishment of agrochemical centers on kolkhozes and sovkhozes according to the elaborated unified scheme for the development of chemicalization in the republic is the second. For this it is necessary to utilize no less than 40 million rubles of the funds of kolkhozes and sovkhozes.

A rapid development of rayon bases and agrochemical centers on farms will make it possible to greatly improve agrochemical services and to successfully solve the food program. During the current five-year plan the enterprises of the republic's Sel'khozkhimiya plan to cart out and apply 24.6 million tons of organic fertilizers to fields, to lime 500,000 hectares of acid soil, to phosphorite 300,000 hectares and to apply mineral fertilizers on an area of 1,150,000 hectares.

An extensive construction of the production base, housing and cultural-general projects is also envisaged. A total of 17 motor garages and 20 shops for 3,850 standard places, warehouses for one-time storage of 96,000 tons of mineral fertilizers, 60,000 square meters of housing and so forth will be put into operation. All this will make it possible to greatly improve agrochemical services to the republic's kolkhozes and sovkhozes.

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EFFECTIVE, COORDINATED AGROCHEMICAL SERVICES ADVOCATED

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 11, Nov 81 pp 3-10

/Article by V. P. Nikonov, chairman of the Soyuzsel'khozkhimiya Association, USSR deputy minister of agriculture: "On the Tasks of the Country's Unified Agrochemical Services for an Efficient Utilization of Chemicalization Agents in the Light of the Decisions of the 26th CPSU Congress"/

/Text/ The decree "On the Establishment of Unified Specialized Agrochemical Services in the Country" was adopted in August 1979. These services were made responsible for a scientifically substantiated utilization of mineral and organic fertilizers, chemical and biological plant protection agents, ameliorants, feed additives, growth regulators and other chemicalization agents at all the country's agricultural enterprises. Tasks of increasing soil fertility, the productivity of agricultural land and the yield of all crops were set. How big and responsible these tasks are can be seen from the brief agrochemical description of USSR soils.

There are 65.6 million hectares of acid land in the country. More than 100 million hectares are saline and 95.6 and 27.3 million hectares have a low content of mobile phosphorus and exchange potassium respectively. The natural productivity per hectare of such land is only 5 to 7 quintals of feed units. On arable land there are more than 152 million hectares (71 percent of the total amount) of eroded and erosion dangerous soil with a reduced and low fertility. More than 70 percent of the country's land area is in zones with a short vegetative period or with a dry climate.

During the 11th Five-Year Plan the average annual agricultural output is to be increased by 12 to 14 percent and labor productivity in the public sector, by 22 to 24 percent. By 1985 the production of grain is to be brought up to 238-243 million tons, of sugar beets, up to 100-103 million tons, of meat, up to 17-17.5 million tons and of milk, up to 97-99 million tons. Such high rates of increase are also planned for all the other types of products.

The country's agrochemists play a special role and have a special responsibility in the cause of the further increase in the productivity of agriculture. At present the proportion of chemicalization agents comprises 50 to 60 percent in the totality of factors determining an additional increase in the harvest of agricultural crops. Unfortunately, they are not always utilized efficiently, as a result of which we fail to gather a large quantity of output. This is due, first, to the losses and even spoilage of fertilizers during transportation and storage and, second, to the incorrect and often incompetent application of mineral fertilizers and other chemical agents. In connection with this on every farm thought should be given to how to utilize chemical agents in a better, more efficient and more competent way.

On a countrywide scale it is necessary to strengthen in every possible way the material and technical base of agrochemical services and to increase the effectiveness of chemicalization on the basis of the provision of rayon and interrayon agrochemical associations with highly productive equipment, accelerated construction of production projects for chemicalization centers, introduction of advanced technologies, expansion and intensification of scientific research in the area of chemicalization of agriculture, improvement in the organizational structure of agrochemical services and their reinforcement with highly skilled specialists. In all, about 7 billion rubles are allocated for the establishment of the chemicalization base during the 11th Five-Year Plan (twice as much as during the 10th Five-Year Plan), including 4.7 billion rubles, for Sel'khozkhimiya projects.

After the first conference, which discussed problems connected with the formation of agrochemical services in the country, the USSR Council of Ministers, the State Planning Committee and other directive bodies adopted 47 documents regulating and controlling the activity of our subdivisions and their relations with kolkhozes, sovkhozes and other state enterprises and organizations. As yet not all the raised problems have been solved, but it can be stated that the basic conditions for a productive activity of the scientific and production subdivisions of Sel'khozkhimiya have been created.

We still have many problems. Below I would like to single out the problems that require an immediate practical solution. The planning of the utilization of fertilizers and other chemicalization agents by zones and crops is the first.

When we talk about a scientifically substantiated application of agricultural chemicalization agents, first of all, we assume knowledge of the agrochemical characteristics of soil on every field and plot. A strict recording of the soil and climatic conditions on a specific farm and their competent utilization are important factors in the effectiveness of chemicalization agents. The third and fourth cycles of soil inspection take place in the country. On the basis of these materials, as well as the data on field experiments with fertilizers in various regions and the results of soil evaluation, the Institute imeni V. V. Dokuchayev developed a soil and agrochemical regionalization of USSR territory, which includes 7 soil and agrochemical zones and 35 regions. We use this regionalization when determining the need for fertilizers, planning reclamation measures, developing zonal recommendations for the application of chemical agents in agriculture and standards of fertilizer expenditures, determining the tendencies toward a change in soil fertility, uncovering the patterns in the effect of mineral fertilizers in various natural and climatic zones and evaluating the effect of fertilizers on the quality of the harvest.

A detailed agrochemical regionalization has been completed in many republics, krays and oblasts. It will make it possible to most efficiently distribute and utilize the resources of mineral and organic fertilizers. For example, 42 agrochemical zones have been singled out on the territory of the Ukrainian SSR. Each is characterized by a certain soil cover, agrochemical soil indicators and a very diverse effect of fertilizers. Positive experience in this matter has been accumulated in Altayskiy and Krasnodarskiy Krays and in Belorussia.

However, objectively evaluating what has already been done, it must be admitted that for most of the country's farms as yet there is no complete and strict recording of specific soil and climatic conditions and the cartograms are poor in content and sometimes are used in an unskilled way. For this reason we have not yet fulfilled the requirements of the CPSU Central Committee for the development on every kolkhoz and sovkhoz of overall programs for an increase in soil fertility for the 11th Five-Year Plan and a more distant future.

The problem of a significant improvement in the work of agrochemical laboratories and planning and surveying chemicalization stations was raised in quite a strict form at the first conference. Unfortunately, little changed last year. The majority of the indicated subdivisions conduct soil research according to 5 or 7 elements with an intolerably long periodicity. The process of transformation of laboratories into planning and surveying stations is slow. As long as we do not change over to soil analysis for all macro- and micro-elements and do not know what is scarce on a specific field and what hampers an increase in the productivity of plants, the control of the quantity and quality of the harvest will be of a purely theoretical nature. In the present situation developments of overall and non-overall programs for an increase in soil fertility on a scale of republics, krays and oblasts come comparatively easy to us. There is no specific field and with the help of arithmetic we are able to handle "general" problems, but this does not increase bread or feed.

The maximum possible improvement in the activity of our scientific subdivisions, laboratories and chemicalization stations so that in 3 to 5 years every kolkhoz and sovkhoz may receive from us a full agrochemical description of its fields, see the dynamics of their fertility and promptly take the necessary measures should be considered an important task. In the next few years it is necessary to establish a network of rayon and farm agrochemical laboratories, whose tasks will be the diagnosis of plant nutrition and management of the technology of production of agricultural products. To systematize the materials concerning the agrochemical characteristics of soil and to objectively analyze the results of utilization of all chemicalization agents on every farm are the immediate problems in this plan. Even if not everyone is able to develop in depth scientifically substantiated programs during this five-year plan, a simple document systematizing farm activity on a specific field will be of unquestionable benefit.

Although the quality of fertilizers and the nutrient ratio in them leave much to be desired, the production of chemicalization agents is steadily increasing in the country. Whereas in 1965 a total of 6.3 million tons of fertilizer nutrients were supplied to agriculture, in 1980, a total of 18.7 million tons. In the last 10 years the production of plant protection agents rose 60 percent, the deliveries of chemical meliorants were almost doubled and the quantity of polymeric materials, biopreparations, feed additives, feed preservatives and other agents allocated to rural areas increased annually. These data are presented to stress once again the importance at the present stage of a carefully thought-out approach to the utilization of chemicalization agents and of constant and painstaking work on an increase in their harvest return.

An analysis of the effectiveness of utilization of chemicalization agents during the 10th Five-Year Plan evokes serious concern in several points. With the remaining shortage of mineral fertilizers only the following were provided at rates close to optimal rates during the 10th Five-Year Plan: cotton (417 kg of active substance per hectare), sugar beets (460 kg), potatoes (274 kg) and vegetables (252 kg). The harvest return per kg of nutrients comprised 79 percent of the standard return in cotton (Tajikistan, 109 percent and Kirghizia, 35 percent), 63 percent, in sugar beets (Kirghizia, Moldavia, Georgia and Kazakhstan, more than 100 percent, the Central Region of the RSFSR, 23 percent, the Central Chernozem Region, 46 percent, Lithuania, 50 percent and Latvia, 50 percent), 43 percent, in potatoes and 29 percent, in vegetable and melon crops. The old truth--fertilizers cannot replace agrotechnology--was confirmed again. At the same time, under grain crops 54 kg of nutrients per hectare were applied and under fodder crops on arable land, 59 kg per hectare and on pastures and meadows, 2.6 kg per hectare.

In connection with this we proposed that during the 11th Five-Year Plan the entire increase in the deliveries of mineral fertilizers be allocated for grain and fodder crops, which can raise the production of grain by 20 million tons and of feed, by more than 10 million tons of fodder units. A practical solution of this problem will largely depend on the activity of the managers of republic and oblast Sel'khozkhimiya associations. We must not limit our activity only to the delivery of chemicalization agents and to the issue of recommendations. We must constantly remember our full responsibility for an objective distribution and skilled utilization of all chemicalization agents on farms. At this moment the most important thing for the workers of agrochemical services is to feel that they are the masters on Soviet land responsible for an increase in the fertility of every field and controlling one of the most important technological units of agricultural production, whose labor is fraught with an additional output of grain, feed and other plant products.

Let us examine another aspect of chemicalization, which can be called "agrochemistry and the quality of the harvest." For comparison we will cite data on the productivity of sugar beets during the 10th and 8th Five-Year Plans. During that period the application of mineral fertilizers to sugar beets increased by 100 percent and of organic fertilizers, by 131 percent. At the same time, however, the sugar content was lowered from 16.9 to 15.6 percent. As a result, despite an increase of 2.5 million tons in the purchases of sugar beets, the average annual production of sugar did not grow during the 10th Five-Year Plan. To be sure, these figures reflected the entire set of factors forming the harvest and the quality of output both in the field and at the plant. It is necessary to clarify precisely for what part of the negative phenomena determining such indicators agrochemistry is accountable.

It should be taken into account that during the past 15 years the rates of nitrogen application increased 1.5- to 3-fold, in connection with which the nutrient ratio in the used mineral fertilizers was disrupted. There is no 100-percent correlation between an increase in the rates of nitrogen and a decrease in the sugar content of roots, but, to be sure, a close relationship exists. As a result of the disruption in the nitrogen, phosphorus and potassium ratios in mineral fertilizers their effectiveness and harvest return are lowered. To apply 460 kg of mineral fertilizers and 17 tons of organic fertilizers per hectare means to expend a minimum of 150 rubles (plus average expenditures of 130 rubles per hectare on plant protection) and sugar production per hectare is reduced. This is intolerable! This happens, because in many cases to this day the need of sugar beets for fertilizers is determined by a maximally simplified way--2 tons per hectare and that's all. As though fertilizers are a faceless mass, as though there are no agrochemical cartograms of fields and a balance method of determining the need for all nutrient elements for the production of the planned harvest. The simplified method leads to the fact that, for example, in Cherkasskaya Oblast in 1980 at the beginning of sugar beet harvesting the top-root ratio was 1:1 (with a norm of 0.5:1). It turned out that not much fodder was gathered from sugar beet plantations.

It should be noted that the scientific studies of these problems are not sufficiently profound. In our country a nitrogen-potassium ratio of 1:1 is recommended, while in neighboring foreign countries 3 units of potassium and sodium (total) per unit of nitrogen are applied.

In the nonchernozem zone of the RSFSR the indicators of fertilizer return in all crops and, especially, potatoes are very alarming (table). In addition to high doses of mineral fertilizers 40 to 44 tons of organic fertilizers per hectare are annually applied to potatoes in this zone. Of course, the extreme climatic conditions during the year or several years are unsettling, but even with due regard for this the yield level is alarming. Apparently, there is a need for a careful factor analysis of yield components and for specific instructions for every farm, especially in seed production.

High increases in the gross output of raw cotton have been attained in the last few years. Everyone knows how much effort and knowledge must be applied to bring cotton yield up to 30 quintals per hectare. This indicator is now characteristic for most farms in the cotton sowing republics of Central Asia. However, owing to the insufficiently high quality of raw cotton, a full national economic effect from fertilizers is not attained. In the 1940's, when the yield of cotton was 10 to 15 quintals per hectare, the opinion was formed that serozem contained a sufficient amount of potassium and the application of nitrogen and phosphorus had a decisive effect on the harvest of raw cotton. Since that time harvests increased sharply, conditions changed, but the attitude toward potassium remained the same. For example, in Uzbekistan the annual rates of mineral fertilizers during the 10th Five-Year Plan were as follows: 222 kg of nitrogen per hectare, 139 kg of phosphorus per hectare and 67 kg of potassium per hectare. The first inspection round showed that the proportion of land rich in potassium comprised 38.2 percent of the total area and the third round, only 31.5 percent. Numerous investigations conducted by prominent scientists and workers of our agrochemical laboratories have established that the shortage of potassium in soil increases year after year. For example, in Andizhanskaya Oblast it reached 842 kg per hectare, in Syrdar'inskaya, 903 kg per hectare, in Tashkentskaya, 842 kg per hectare and in Kashkadar'inskaya, 801 kg per hectare. It has also been demonstrated that with the basic harvests of 25 to 30 quintals per hectare without the calculated doses of potassium the effectiveness of phosphorus and nitrogen fertilizers drops sharply and the quality of fiber (its industrial count) is also lowered. Unfortunately, practical conclusions have not yet been drawn and many farms in Central Asia every year continue to overspend from 12 to 30 percent of nitrogen and phosphorus on the planned harvest. At the same time, however, a surplus of nitrogen and phosphorus in soil is not created, which points to the need to correctly combine nutrition elements.

It should be stressed that it is a question of utilization of physical assets and unreasoned actions are intolerable here. Throughout the country in the cultivation of the indicated three crops (sugar beets, potatoes and cotton) 291,000 tons of nitrogen in terms of active substance are annually overspent. Such a volume represents the total annual allocations of Moldavia, Latvia and Armenia. If all this nitrogen were allocated for meadows and pastures, no less than 3 million tons of fodder units could be obtained!

Effectiveness of Mineral Fertilizers in Potato Plantings

Republic	Applied fertilizers, kg per hectare, active substance		Tuber harvest, quintals per hectare	
	1971-1975	1976-1980	1971-1975	1976-1980
RSFSR	211	269	86	79
including				
North-West Region	285	389	114	92
Central Region	251	307	92	79
Volgo-Vyatskiy Region	236	287	99	77
Ural Region	202	284	78	89
Belorussian SSR	259	303	130	154

In 1980-1981 the specialists of Sel'khozkhimiya associations and the scientific workers of the Central Institute of Agrochemical Services to Agriculture and of the All-Union Order of the Red Banner of Labor Scientific Research Institute of Fertilizers and Soil Science imeni D. N. Pryanishnikov developed or further improved standards of expenditure of mineral fertilizers and other chemicalization agents for most crops. Every republic also accumulated quite rich experience in an effective utilization of these agents. A long time ago all the republics received in the USSR State Planning Committee a draft of control figures for the delivery of mineral fertilizers during the 11th Five-Year Plan. All this taken together makes it possible to develop detailed plans for an effective utilization of fertilizers, meliorants and other chemicalization agents in oblasts, krays and rayons and, most importantly, on every farm. Such plans should be integral parts of overall programs for an increase in soil fertility and their fulfillment should be controlled strictly.

The USSR Ministry of Agriculture also entrusted chemicalization stations and agrochemical laboratories with duties in the programming of harvests of agricultural crops on irrigated land. This is also large-scale and responsible work and it must be handled conscientiously.

Let us proceed to the supply activity of our subdivisions. Accurate and efficient deliveries of fertilizers in strict accordance with the plans (both in terms of quantity and assortment) are the most important prerequisite for the effectiveness of mineral fertilizers. We have many discussions of this subject, but there are no significant improvements in this matter. Many oblasts in Russia, the Ukraine, Kazakhstan, Turkmenia and other republics were checked in 1981 and each time there was the same shortcoming--there was no true state discipline in deliveries. The situation is better in the Belorussian SSR, but even there not everything is satisfactory. For example, in Baranovichskiy Rayon, Brestskaya Oblast, as of 30 March 1981, that is, before the beginning of sowing, 14 farms were supplied with phosphorus fertilizers in the volume of 100 to 240 percent of the quarterly plan, while the other 14 kolkhozes and sovkhozes did not receive them at all. The provision of farms with nitrogen fertilizers ranged from 31 to 211 percent and with potassium fertilizers, from 63 to 285 percent. Cases of a mass breach of discipline connected with allocations were uncovered in many rayons in Chimkentskaya Oblast in the summer of 1981.

The reasons for such phenomena are clear. As a rule, fertilizers arrive from plants irregularly, their delivery to farms according to types is not controlled strictly and on-the-line warehouses for sorting out fertilizers are not utilized sufficiently. In Tajikistan, Latvia, many oblasts of the RSFSR and Georgia even during the storage period they are loaded 30 to 40 percent (instead of 70 to 80 percent according to the norm).

In 1981 all the republics adopted a number of measures for an increase in the volumes of agrochemical work with the forces of Sel'khozkhimiya associations and for an improvement in its quality. During the first half year the total volume of such work in the country rose 11 percent, including the following: The application of organic fertilizers increased by 20 percent and of mineral fertilizers and pesticides, by 27 percent, peat extraction increased by 41 percent and the quota participation of aviation in agricultural work, by 43 percent. In Georgia, Kazakhstan, Kirghizia and Turkmenia the volumes of agrochemical work increased 1.5- to 2.5-fold. Lithuania's agrochemists work quite well. They have increased the volumes of work 1.6-fold, as compared with last year, and have fulfilled the plans for the entire basic products list. The positive aspects in the activity of associations in the Bashkir ASSR, Stavropol'skiy Kray, Voronezhskaya, Gor'kovskaya, Leningradskaya, Penzenskaya, Saratovskaya and Belgorodskaya Oblasts in the RSFSR, Dnepropetrovskaya, Zakarpatskaya, L'vovskaya and Rovenskaya Oblasts in the Ukraine, Vitebskaya and Minskaya Oblasts in Belorussia and Samarkandskaya Oblast in Uzbekistan should be noted.

The system's motor transport enterprises improved their work somewhat. During the first half year of 1981 they performed services worth 301.7 million rubles (an increase of 7.4 percent) and increased output (per average listed machine) in tons by 8.5 percent and in ton-kilometers, by 12.1 percent.

Sel'khozkhimiya associations took an active part in the introduction of industrial technologies of cultivation of corn, sunflower seeds, soybeans, sugar beets, flax fiber and other crops. For these crops areas have been increased and the quality of all technological operations has been improved considerably.

However, while the volumes of agrochemical work increased throughout the country, Belorussia, Moldavia and Turkmenia lowered the rates of delivery and application of organic fertilizers, Latvia, of peat extraction and the RSFSR and the Kirghiz SSR, of the procurement of local lime and gypsiferous materials. We are also reproached on account of the quality of work, especially of liming and fertilizer application.

An increase in the volumes of agrochemical work performed by Sel'khozkhimiya detachments and units and a considerable improvement in its quality and overall performance should be our daily concern. As yet we do not sufficiently participate through our forces in the performance of such operations as the preparation, delivery and application of organic fertilizers, preparation of mineral fertilizer mixtures and application of mineral fertilizers. We reluctantly undertake the performance of work on plant protection.

Work on chemical melioration of acid and saline land requires special attention. Only 32.6 million hectares of acid land were limed during the 10th Five-Year Plan. This means that now there is a 10-year, instead of a 4- to 5-year, cycle. The use of a large quantity of physiologically acid fertilizers and the increasing removal of calcium from soil by the harvest put the liming problem in the forefront. The following acid land remained at the beginning of 1980: in the RSFSR, 51.8 million hectares, including in the nonchernozem zone, 31 million hectares; in the Ukraine, 6.3 million hectares; in Belorussia, 5.4 million hectares, in Lithuania, 1.1 million hectares; in Latvia, 700,000 hectares; in Estonia, 100,000 hectares; in Georgia, 57,000 hectares.

In 40 oblasts in the RSFSR the proportion of acid land exceeds one-half of the area of agricultural land and in Kostromskaya, Ryazanskaya, Smolenskaya and Permskaya Oblasts and in the Far East it comprises 85 to 90 percent. At the existing rate one liming cycle will occur in Lipetskaya Oblast in 17 years, in Orlovskaya Oblast in 19 years, in Amurskaya Oblast in 22 years, in Kirovskaya Oblast in 23 years, in Permskaya Oblast in 13 years, in Udmurtia in 20 years, in Gor'kovskaya Oblast in 17 years and in Smolenskaya Oblast in 12 years. In Kurskaya Oblast, where acidity has increased on 1.2 million hectares of arable land in the last decade, at the present rates 305 years will be needed to extinguish it!

The situation with solonets is bad. Having 100 million hectares of solonets, our annual volume of gypsuming is 1 million hectares and of agromelioration treatment, from 300,000 to 400,000 hectares. Our associations operating in the zone of acid and saline land can be of real use to agriculture if they concentrate their forces primarily on the solution of these problems. However, the results of 2 years of work show that as yet there are no significant changes. The mobile mechanized columns for work with solonets established in Kazakhstan are only beginning their activity and in the zone of acid land we are satisfied with what was achieved during previous years.

Rossel'khozkhimiya managers must be reproached very seriously. If their attitude toward the indicated problems does not change in the very near future, they will not be solved. In the summer of 1981 a total of 2.3 million tons of lime materials were accumulated at bases, mainly at railroad stations. And this in a season of mass work! During the first half year of 1981 9 out of 16 oblasts reduced lime production at local mines, that is, in Kalininskaya Oblast, to one-third, in Smolenskaya Oblast, by a factor of 2.4, in Kirovskaya Oblast, by a factor of 1.5 and in Permskaya Oblast, by a factor of 1.4. Through the fault of Soyuzsel'khozkhimiya workers the organization of mine surveying divisions is delayed and through the fault of Rossel'khozkhimiya managers the volumes of lime production previously attained without the participation of these divisions are reduced without substantiation. A total of 9 million tons of defecate are annually accumulated on the territory of the RSFSR, but only 2.8 million tons are used for liming.

There has been a stable increase in the volumes of utilization of organic fertilizers in the country in the last few years. Owing to their efficient application, many farms stably obtain high harvests of potatoes and of industrial and vegetable crops. However, throughout the republics, as well as the country, a proper relationship between the increase in the volumes of application of organic fertilizers and the increase in harvests is not observed. There are many reasons for this. At the past conference we discussed this in detail and it should be noted that efficient measures to increase the effectiveness of these most valuable fertilizers are now taken in many oblasts. The experience of Krasnodarskiy Kray in the preparation and utilization of liquid and solid organomineral mixtures deserves to be widely disseminated, the fertilization of fallow in Stavropol'skiy Kray is promising and a great deal of useful experience has been accumulated in the Ukraine, Belorussia and the Baltic Republics.

The effectiveness of organic fertilizers is largely connected with the work of our mechanized detachments. Therefore, the workers of Sel'khozkhimiya associations together with farm managers and specialists must develop in each specific case methods of preparing organic fertilizers and create a material base, even if it is the simplest, for this, as well as determine the time and place of their application. Every farm should have several fields (with due regard for a 4- to 5-year cycle) subjected to "major repairs" every year. We will never have so many fallow fields, but a place in crop rotations for the performance of the entire set of agrochemical operations can be found on any farm. If winter rye sown for fodder purposes is made the predecessor of potatoes, if fields are cleared during the first 10-day period of June, if agrochemists are given the opportunity of working 1 to 1½ months on them and if they are fertilized with full doses at the best time, it will be possible to grow during the same year another harvest of fodder mixtures and to have an excellent predecessor for potatoes guaranteeing a tuber harvest of 250 to 300 quintals per hectare, or for sugar beets.

Sel'khozkhimiya associations have also been entrusted with the duty of a fuller utilization of sapropels as fertilizers. In the nonchernozem zone the reserves of sapropels are vast, but special equipment is needed for their extraction. The time of the order of this equipment is passing, but in 1982 work is to be widely expanded in all oblasts where there are reserves of sapropels.

The necessary effectiveness in the chemicalization of agriculture can be attained only with an overall performance of all work connected with reclamation, with the utilization of organic and mineral fertilizers and with a reliable protection of plants against pests, diseases and weeds. The deliveries of pesticides and, especially, herbicides will increase every year. According to the availability of funds in 1981-1985 the average annual volumes of work can be as follows: on pest and disease control, 120 million hectares, on weed control, 98 million hectares and on defoliation and desiccation, 7.6 million hectares.

At present integrated protection systems are widely introduced into practice and conditions under which chemical treatments become economically substantiated have been determined for 98 species of the most widespread pests. Great interest in the biological method of plant protection has been manifested in the last few years. In 1980 it was applied on 17 million hectares.

Fields are being cartographed for weediness, which will help to more accurately plan the utilization of herbicides and to use their mixtures more widely. There are also many other useful undertakings in the field of plant protection. However, a certain "lack of a system" in the organization of protective measures, in the application of pesticides and in the approaches of managers of the services to problems is disturbing. Let us examine at least two problems concerning this subject. Our, that is, centralized, forces now perform 24 percent of the total volumes of work on plant protection and the forces of kolkhozes and sovkhozes, 76 percent. Provision with equipment for the application of pesticides makes up 72 percent of the total need and for the preparation of solutions, from 10 to 12 percent. The result is as follows: Pesticides are dispersed over the warehouses of farms, it is not always possible to fully utilize them at the necessary time and place, the quality of work is not evaluated and in most cases solutions are prepared by the most primitive method.

The more warehouses, the greater the territory subjected to the danger of contamination--this is the second problem. In 1980 we observed how work with pesticides was carried out in the Nesvizhskiy Association of the Belorussian SSR. Everyone was pleased. This means that this experience should be introduced. It involves a great deal of trouble, but the effect is high. A firm line must be pursued so that in the very near future basic work on plant protection is performed by the specialized units of our associations. It is necessary to more rapidly establish central, group and, on large farms with a large volume of work, farm solution units, to fill them with equipment and to place the basic operations with pesticides under the strictest control.

It must be admitted that the quality of agrochemical work carried out by the forces of farms, as well as by the special detachments and units of associations, is not yet high. The nonuniform application of mineral fertilizers and other chemicalization agents is the main trouble. In most associations there are no grounds for the adjustment of machines and the operation of unadjusted KSA-3 in the application of lime and mineral fertilizers leads to such nonuniformity that from positively operating factors chemical agents turn into negative factors. Is it necessary to explain what a nonuniformity coefficient of 200 and 300 percent means when only 15 percent is permissible and, when the coefficient approaches 70 percent, the harvest of grain crops is reduced by one-half?

It is obvious that wages should be connected with the quality of agrochemical work. A bonus system, in which one part of the additional payment depends on the quality of work and the other, on the harvest, is now being introduced. As yet, however, there is no efficient solution of the problem. It is necessary to set up various experiments in production collectives and to search for forms of financial incentives for workers of agrochemical services in which the final result--the harvest and its quantity and quality--would be the basis for the material and moral evaluation of the labor of agrochemists.

Close contacts with institutes of economics of agriculture should be established in every republic so that a connection between the harvest and wages may be sought by joint efforts. In matters of financial incentives we do not have criteria of evaluation even in such an important matter as the safeguard of chemical agents en route from the plant to the field. Many fertilizers are lost--in some places more and in some places less--the stages are known, but there are no measures of specific responsibility.

Turning to warehouse facilities, I will dwell on the state of the loading and unloading machines and mechanisms available at our bases and warehouses. Although Soyuzsel'khozkhimiya constantly takes measures for an additional allocation of these machines (more than 1,000 warehouse machines and 14,000 wooden pallets were received in 1980 and 1981 alone), in a number of places their operation is not carried out at the proper level. For example, during the first quarter of 1981, owing to the lack of current repairs and the low level of technical maintenance, more than 500 railroad car unloading machines (about 18 percent of their available pool) were idle in Sel'khozkhimiya associations every day and in such associations as Turkmensel'khozkhimiya, 24 percent, Azersel'khozkhimiya, 28 percent, Armsel'khozkhimiya, 21 percent and Ukrsel'khozkhimiya, 20 percent of the machines. With a sufficiently high level of mechanization of loading and unloading work at our bases (throughout the country, more than 75 percent) the percentage of manual labor in loading operations remains high in a number of republics: in Tadzhiksel'khozkhimiya, about 50 percent, in Kirgizsel'khozkhimiya, 45 percent, in Turkmensel'khozkhimiya, 43 percent and in Azersel'khozkhimiya, 35 percent.

Mechanized sections, brigades or units for the unloading of railroad cars and loading of motor transport and the technical servicing of warehouse machines and mechanisms must be organized at every supply base in the very near future. At the same time, we constantly demand that the USSR State Committee for Supply of Production Equipment for Agriculture expand the volumes of major repairs of our machinery and equipment. However, measures for an organization of equipment repairs and a full utilization of the capabilities of the enterprises of the State Committee for Supply of Production Equipment for Agriculture should also be taken in republics, oblasts and rayons. At many of our bases equipment is in a neglected state, operates to the point of wear and some Sel'khozkhimiya associations do not even have contracts with the State Committee for Supply of Production Equipment for Agriculture for major repairs and deliveries of machines.

Serious problems concerning a prompt unloading of railroad cars are connected with the state of equipment at bases. During the first half year of 1981 the average daily number of unloaded railroad cars was 543, which was 100 railroad cars less than during last year. However, in June and July the situation became more complex, especially in associations in the RSFSR and Azerbaijan, where 550 to 680 railroad cars remained unloaded every day and on days off, 20 to 25 percent more. An increase in the above-standard idle time and in the amount of fines should not be tolerated. Insufficient work on the introduction of the experience of Belsel'khozkhimiya, which constantly keeps to the established schedules of railroad car unloading in terms of months and half year, is carried out in associations.

There is also criticism of the operation of motor transport. Kazsel'khozkhimiya, Turkmensel'khozkhimiya and many associations of Rossel'khozkhimiya tolerate a lag in the fulfillment of the assignment for freight transport for agrochemical purposes. Advanced methods of organization and stimulation of drivers' labor are introduced slowly in a number of associations. The brigade contract is not widely applied in the transportation of mineral fertilizers and lime materials, as well as in mechanized detachments for the delivery of organic fertilizers and peat. As a result, part of the transportation of chemical goods is carried out by the motor transport of kolkhozes and sovkhozes.

"Plant-field" nontransshipment motor transportation was introduced at the Keday-nyay Motor Enterprise. As the practical experience of this enterprise, as well as of a number of other similar enterprises of this system, shows, when the transportation of chemical products by motor transport is organized directly from supplier plants, the regularity of the delivery of mineral fertilizers to the place of consumption increases and their better preservation is ensured (owing to the reduction in intermediate transshipments).

Our organizational structure is quite complex. Farm and interfarm chemicalization centers, agrochemical centers of the type of the Pervomaysk Association in Khar'kovskaya Oblast in the Ukrainian SSR and simply individual warehouses and bases--as yet all of them are not connected into a single complex on territories and often weakly supplement each other.

When planning the projects that are to be built during the 11th Five-Year Plan, the republics proceeded from the schemes of placement of on-the-line and remote warehouses approved in July 1980. On the basis of these documents it is necessary to conclude the work on the placement of overall production and technical bases with an accurate determination of service zones before the end of 1981. This has already been done in Stavropol'skiy Kray and in Moscow, Leningrad, Saratovskaya, Ryazanskaya and a number of other oblasts. The schemes of placement of all chemicalization projects in the 11th and 12th Five-Year Plans and in the consolidated plan--until the year 2000--have been studied in detail.

The most serious turning point should be attained in capital construction. Warehouse capacities for only 74,000 tons of one-time storage--only 8 percent of the annual plan--were put into operation during the first half year of 1981; on sovkhozes and at other state agricultural enterprises, for 66,400 tons (5 percent of the annual plan) and on kolkhozes, for 119,700 tons (15 percent). Warehouses for only 7,900 tons (with an annual plan of 300,000 tons) were put into operation by the economic method and with the forces of contracting organizations of republic subordination and not a single warehouse was put into operation by the USSR State Committee for Supply of Production Equipment for Agriculture (with an annual plan of 118,000 tons).

During the current 5-year period, in addition to new construction, it is necessary to carry out the reconstruction and major repairs of very many projects. The reconstruction of 1,212 warehouses for the acceptance of mineral fertilizer vans is now an urgent task. Most republics have begun this work. However, in Uzbekistan, Turkmenia, Georgia and Azerbaijan not a single warehouse has been equipped to this day. A total of 3,000 such vans are now engaged in the transportation of chemical goods in the country, but we can use only 300.

I would like to stress once again what has been said many times. Along with the development of contract construction we simply must have cost accounting repair and construction organizations in every association. The construction of housing and of social welfare projects and the repair of production premises must be carried out basically by our own forces.

The continuous rise in the technical level of enterprises and organizations, increase in the volumes and appearance of new types of work and improvement in technologies raise the demands on the quality of training of workers and engineering and technical personnel. Taking this into consideration, we developed, approved and sent to Sel'khozkhimiya associations study plans and programs for an improvement in skills in 11 positions and occupations.

The development of study plans and programs for the training and retraining of agrochemists and workers of agrochemical laboratories is being completed at the Central Institute of Agrochemical Services to Agriculture. The All-Union Scientific Research and Planning Institute of Agrochemistry carried out this work for all the other industrial occupations. In 1½ years 20,960 managers and specialists improved their skills and about 60,000 people were trained at short-term seminars. The established assignments for the retraining of managers and specialists have been basically fulfilled. In a number of republics, however, the training of chairmen of rayon Sel'khozkhimiya associations has not been organized to this day. The assignment for an improvement in the skills of specialists in Armsel'khozkhimiya and Turkmensel'khozkhimiya associations and in a number of oblast Sel'khozkhimiya associations in the Russian Federation and the Ukraine is not fulfilled satisfactorily. Proceeding from the decisions of the 26th party congress, we must develop and intensify in every possible way the process of improvement in the skills of managers and specialists of all the levels of management of agrochemical processes, utilizing the training base of local higher and secondary specialized educational institutions and schools for the training of medium-level managers and specialists for this. This task, along with the solution of technological problems, should be in the center of attention. Programs for improvement in the skills of managers and specialists must be developed and implemented in every enterprise, organization and institution, as well as in rayon, oblast and republic associations.

The range of concerns and duties of the workers of the country's unified agrochemical services is very wide and, in addition to this, it significantly expands every year. The flow of mineral and organic fertilizers will increase and the scale of application of pesticides, growth regulators, nitrification inhibitors and biological agents will expand. Such trends as the utilization of anhydrous ammonia, liquid complex fertilizers and feed preservatives will be developed. In connection with this the best solutions of 77 rayons for an overall chemicalization of agricultural production singled out for approval should become the school for all.

A great deal should be done to improve scientific research. In some republics it is necessary to see to it that existing scientific research institutions are made part of the agrochemical services.

In conclusion I would like to wish all agrochemists a profound understanding of their role and responsibility in the solution of the key problems of the food program, a high civic inspiration in labor and a party attitude toward their duty.

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